COMPENDIUM PIZZAZZ!

Book C

Gerard Romo Garrido

TeeMates
Coolección

Toomates Coolección

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Ámbito Canguro: ESP CAT FR USA UK AUS
Ámbito USA: Mathcounts AMC 8 10 12 AIME USAJMO USAMO TSTST TST Putnam
Ámbito español: OME OMEFL OMEC OMEA OMEM CDP
Ámbito internacional: IMO OMI IGO SMT INMO CMO REOIM Arquimede HMMT BMO
Ámbito Pruebas acceso: ACM4 , CFGS , PAP
Recopilatorios Pizzazz!: Book A Book B Book C Book D Book E Pre-Algebra Algebra
Recopilatorios AHSME: Book 1 Book 2 Book 3 Book 4 Book 5 Book 6 Book 7 Book 8 Book 9

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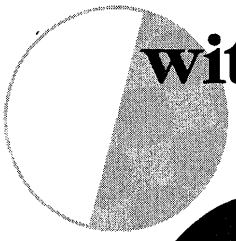
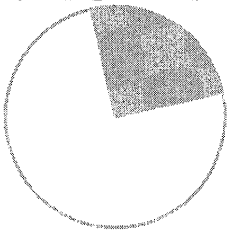
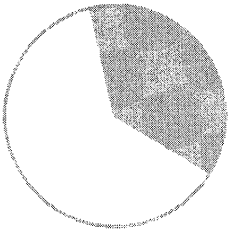
Middle School Math with Pizzazz!







Number Theory; Fractions; Operations with Fractions; Fractions and Decimals

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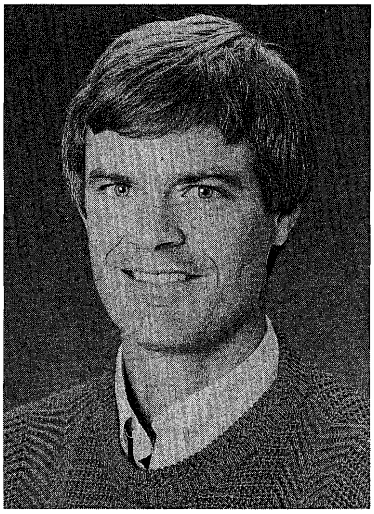

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NOTES FROM THE AUTHORS

MIDDLE SCHOOL MATH WITH PIZZAZZ! is a series of five books designed to provide practice with skills and concepts taught in today's middle school mathematics programs. The series uses many of the same puzzle formats as *PRE-ALGEBRA WITH PIZZAZZ!* and ***ALGEBRA WITH*** PIZZAZZ! both published by Creative Publications.

We believe that mastery of math skills and concepts requires both good teaching and a great deal of practice. Our goal is to provide puzzle activities that make this practice more meaningful and effective. To this end, we have tried to build into these activities three characteristics:

1. **KNOWLEDGE OF RESULTS.** Various devices are used in the puzzles to tell students whether or not their answers are correct. Feedback occurs immediately after the student works each exercise. For example, if a particular answer is not in the code or scrambled answer list, the student knows it is incorrect. He or she can then try again or ask for help. Additional feedback and reinforcement occurs when the student finds a puzzle solution that is appropriate. This immediate knowledge of results benefits students and also teachers, who no longer have to spend time confirming correct answers.

2. **A MOTIVATING GOAL FOR THE STUDENT.** The puzzles are designed so that students will construct a joke or unscramble the answer to a riddle in the process of checking their answers. The humor operates as an incentive, because the students are not rewarded with the punch line until they complete the exercises. While students may decry these jokes as "dumb" and groan loudly, our experience has been that they enjoy the jokes and look forward to solving the puzzles. The humor has a positive effect on class morale. In addition to humor, the variety and novelty of procedures for solving the puzzles help capture student interest. By keeping scrambled answer lists short and procedures simple, we have tried to minimize the time spent on finding answers or doing other puzzle mechanics.

3. **CAREFUL SELECTION OF TOPICS AND EXERCISES.** The puzzles within each topic area are carefully sequenced so that each one builds on skills and concepts previously covered. The sequence of exercises within each puzzle is designed to guide students in incremental, step-by-step fashion toward mastery of the skill or concept involved. A primary goal is the development of problem-solving ability. In order to solve problems, students need not only rules and strategies but also a meaningful understanding of basic concepts. Some puzzles in this series are designed specifically to build concepts. Other puzzles, especially those for estimation, also help deepen students' understanding by encouraging them to look at numbers as quantities rather than just as symbols to be manipulated. For puzzles specifically keyed to problem solving, we have tried to write problems that are interesting and uncontrived. We have included extra information in some problems, and have also mixed problem types within sets, so that the problems cannot be solved mechanically.

In addition to these efforts to make the puzzles effective, we have tried to make them easy to use. The topic for each puzzle is given both at the bottom of the puzzle page and in the Table of Contents on pages iv and v. Each puzzle is keyed to a specific topic in recent editions of leading middle school textbooks. Each puzzle requires duplicating only one page, and many of them provide space for student work. Finally, because the puzzles are self-correcting, they can eliminate the task of correcting assignments.

We hope that both you and your students will enjoy using these materials.

Steve and Janis Marcy

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NOTES ABOUT USING THE PUZZLES

The selection of topics for ***MIDDLE*** SCHOOL MATH WITH *PIZZAZZ!* reflects recent thinking about what is important in an updated middle school math program. Virtually every puzzle can be matched with a particular lesson in recent editions of popular textbooks. After students have received instruction in a topic and worked some sample exercises, you might assign a puzzle along with a selection of textbook exercises.

Students in the middle grades should begin to classify many mathematics problems and exercises into one of three categories:

1. **MENTAL MATH.** Problems for which an exact answer can be obtained mentally.

2. **ESTIMATION.** Problems for which an approximate answer, obtained mentally, is sufficient.

3. **TOOLS.** Problems requiring an exact answer that cannot be obtained mentally. Students will use paper and pencil and/or calculators.

Some of the puzzles in this series focus specifically on one of these categories. A few puzzles actually present problems in all three categories and ask the student to make the classification.

By the time they reach the middle grades, students should generally be permitted to use calculators for problems that require tools (Category 3). The most common argument against calculator use is that students will become overly dependent on them. This concern, though, appears to be based primarily on fear that students will rely on the calculator for problems in Categories 1 and 2, those that should be done mentally.

To solve problems in Category 3, calculators are wonderful tools for computing. Students may also need paper and pencil to make diagrams, write equations, record results, etc., so they will need both kinds of tools. On the other hand, students should not need calculators for problems in Categories 1 and 2, problems that call for mental math or estimation. Skills in these areas are essential not only in daily life but also for the intelligent use of the calculator itself. The puzzles in this series reflect these three categories and the distinction between them.

When students do use calculators, you may want to have them write down whatever numbers and operations they punch in and their answers. This makes it easier to identify the cause of any error and assists in class management. Even when students do mental math or estimation puzzles, have them write a complete list of answers and, where appropriate, the process used to get the answers. Encourage students to write each answer before locating it in the answer list. Students should complete all the exercises even if they discover the answer to the joke or riddle earlier.

One advantage of using a puzzle as an assignment is that you can easily make a transparency of the page and display the exercises without having to recopy them on the board. You can then point to parts of a problem as you discuss it. It is often helpful to cut the transparency apart so that you can display exercises on part of the screen and write solutions on the remaining area.

What Do Kids Do Before They Learn to Read Baseball Cards?

Each row across has 6 boxes. Only three of them contain a number divisible by the given number. Circle these three numbers in each row. Notice the number-letter above each circled number. Write the letter in the matching numbered box at the bottom of the page.

1		10-T	21-D	12-H	9-U	3-E	18-L
	divisible by 2	196	825	4,374	9,701	65,250	38,669
2		13-S	6-0	2-R	16-T	7-A	21-S
	divisible by 3	46	51	913	834	7,085	4,992
3		4-Y	20-T	18-H	15-V	1-S	13-E
	divisible by 5	325	608	5,280	8,542	49,104	70,000
4		14-B	15-I	11-S	1-T	7-0	19-A
	divisible by 2	437	958	5,483	6,042	11,500	39,225
5		5-T	19-E	9-A	17-S	2-H	8-N
	divisible by 3	119	417	5,094	7,286	37,638	84,494
6		11-T	17-E	8-F	5-L	14-S	20-R
	divisible by 5	740	583	1,629	2,115	99,057	69,300
7		8-K	1 7-T	14-P	10-V	8-R	17-C
	divisible by both 2 and 3	78	62	3,054	5,553	24,718	92,406

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

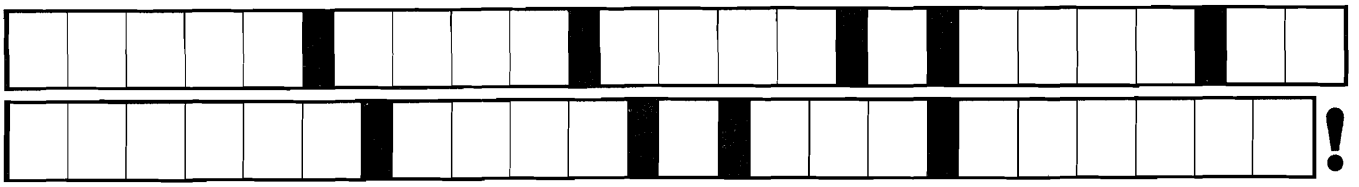
Some Friendly Advice

SOME "FRIENDLY ADVICE" IS HIDDEN IN THE RECTANGLE. TO FIND IT:

Circle letters next to each given number to show divisibility by 2, 3, 5, 9, or 10. Write the circled letters on the line at the right. Also write the letters, in order, into the boxes at the bottom of the page. HINT *Two of the given numbers are not divisible by 2, 3, 5, 9, or 10; no letters will be circled for these numbers.*

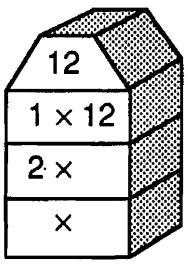
	Number	Divisible by 2	3	5	9	10	
1.	4,095	S	N	E	V	O	
2.	8,170	E	D	R	L	J	
3.	2,685	O	U	M	G	S	
4.	534	P	I	A	T	F	
5.	609	S	N	F	X	T	
6.	29,178	T	O	T	A	I	
7.	90,005	O	A	P	E	B	
8.	467	N	E	M	I	C	
9.	60,201	R	I	E	L	T	
10.	3,375	S	E	O	F	N	
11.	76,380	L	E	A	D	V	
12.	599,422	E	V	M	S	G	
13.	853,806	S	W	I	F	A	
14.	492,570	I	T	H	A	W	
15.	12,685	I	A	E	P	B	
16.	64,423	E	D	A	L	M	
17.	9,999	K	T	B	S	T	
18.	501,105	R	U	C	H	D	
19.	800	K	M	E	N	R	

Friendly Advice:

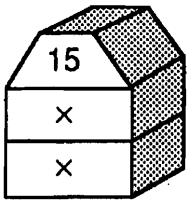


Factor Towers

Write a pair of factors in each "story" of the factor tower. Then count the number of different factors and write this number in the blank.



Number of factors ____



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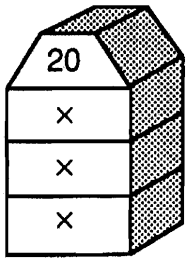

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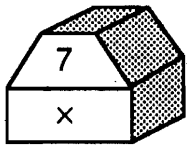

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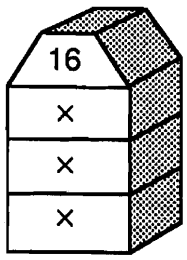

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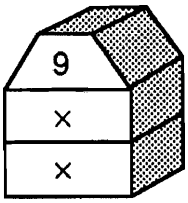

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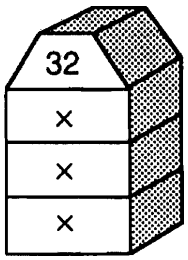

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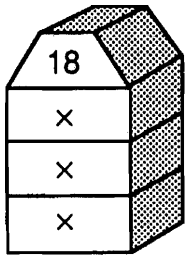

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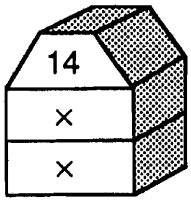

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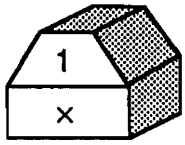

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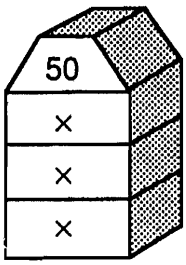

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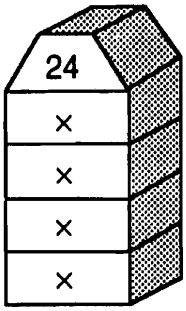

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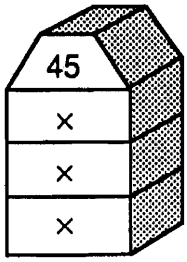

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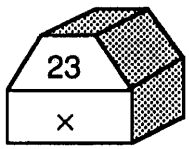

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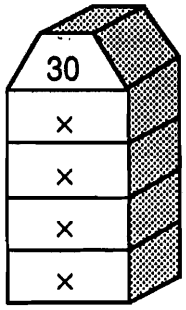

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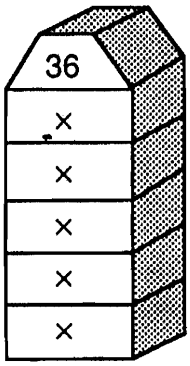

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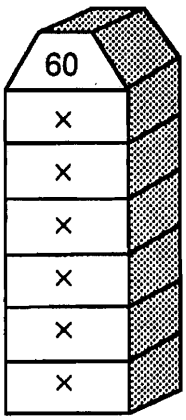

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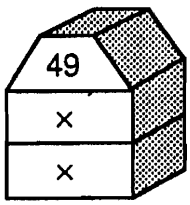

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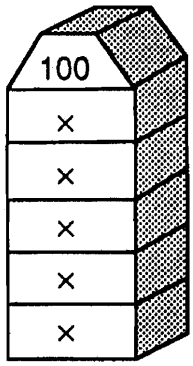

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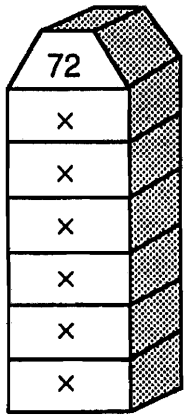


Number of factors ____

Why Do Pins Get Lost?

Circle each factor of the given number. Then write the letters from the boxes that do not contain factors on the line at the right.

Factors of 32	2 P	5 T	8 I	32 F	4 R	14 H	3 E	16 A	1 N	18 Y	
Factors of 24	8 H	1 S	9 A	12 D	4 I	3 V	24 L	18 R	48 E	6 L	2 M
Factors of 10	8 P	5 A	10 L	3 O	15 I	2 S	20 N	100 T	1 S	4 E	50 D
Factors of 48	3 T	8 O	48 A	12 W	6 L	16 F	36 I	2 S	24 T	1 F	96 N	4 H
Factors of 64	16 S	32 T	1 A	24 O	8 R	4 D	6 N	64 P	2 D	128 E		
Factors of 31	31 A	62 D	310 I	11 R	3 E	7 C	1 H	2 T	8 I	16 O	0 N
Factors of 42	3 P	21 H	6 B	14 I	2 U	16 A	42 T	4 N	7 T	84 D	1 O
Factors of 27	6 H	9 I	27 D	54 E	1 R	270 A	7 D	13 E	3 N	0 D	
Factors of 80	20 T	8 U	80 P	4. L	16 O	2 W	12 I	5 T	40 H	6 N	1 T	10 O
Factors of 70	35 N	7 S	14 O	3 T	10 E	70 N	5 O	140 H	1 M	0 E	2 R
Factors of 75	3 S	15 L	9 O	1 U	150 T	25 S	750 H	4 E	75 N	5 D	2 R

What Do You Call It When a Bunch of Kids Throw Crayons and Poster Paint at You?

For each exercise, find the two factors that are missing and write them in the blanks. Cross out the box containing your answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

(1) Factors of 8:
{1, 4, ___ , ___ }

(2) Factors of 20:
{1, 2, 5, 20, ___ , ___ }

(3) Factors of 15:
{1, 5, ___ , ___ }

(4) Factors of 28:
{1, 2, 7, 28, ___ , ___ }

(5) Factors of 40:
{1, 2, 4, 5, 10, 40, ___ , ___ }

(6) Factors of 66:
{1, 2, 3, 6, 22, 66, ___ , ___ }

(7) Factors of 100:
{1, 2, 4, 10, 20, 50, 100, ___ , ___ }

(8) Factors of 21:
{1, 3, ___ , ___ }

(9) Factors of 36:
{1, 2, 3, 4, 9, 12, 36, ___ , ___ }

(10) Factors of 13:
{ ___ , ___ }

(11) Factors of 60:
{1, 2, 3, 4, 5, 6, 10, 15, 30, 60, ___ , ___ }

(12) Factors of 18:
{1, 2, 6, 18, ___ , ___ }

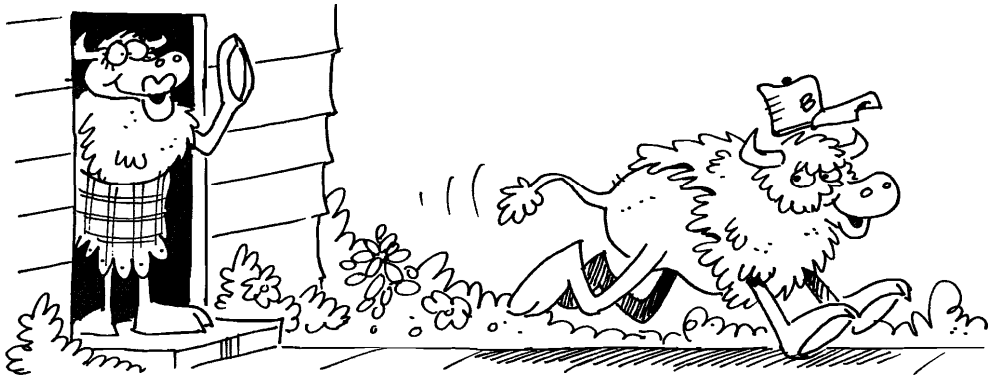
(13) Factors of 45:
{1, 3, 5, 45, ___ , ___ }

(14) Factors of 96:
{1, 2, 3, 4, 6, 12, 16, 24, 48, 96, ___ , ___ }

IT	TH	AN	IS	EW	A	IM	HU	SO	RT
7,21	11,33	9,12	4,14	6,18	4,8	8,32	2,8	12,20	8,15
BR	AT	ME	S	TA	ND	UP	LU	CK	Y
9,15	3,12	1,13	4,10	6,15	5,25	3,15	3,9	12,18	8,20

What Did the Mama Buffalo Say to the Little Boy Buffalo as He Was Leaving for School?

Exactly 60 of the squares below contain prime numbers. Shade in each of these 60 squares. Be sure to use pencil, so you can erase if necessary.

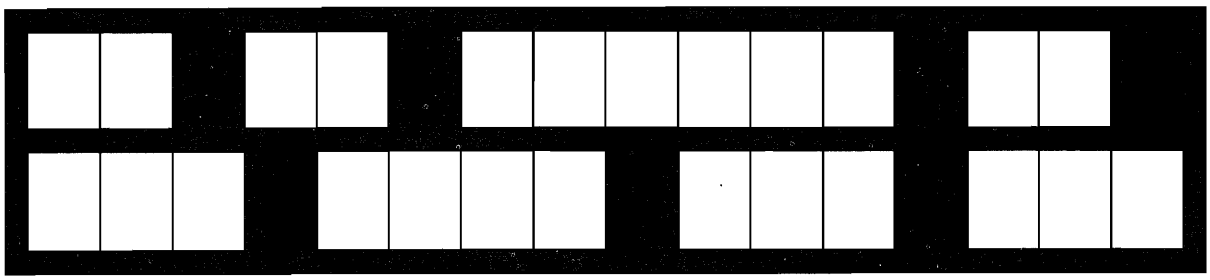


7	10	21	34	6	19	48	39	15	28	40	9	35	26	44	18	50	32	24	14	1
3	42	27	12	33	49	38	4	22	46	30	16	25	36	45	20	8	12	27	38	21
29	17	41	2	46	11	32	31	47	5	16	23	43	13	37	49	41	7	31	3	19
47	30	6	17	42	43	25	2	34	15	1	29	50	22	5	36	9	11	44	28	37
23	39	4	13	20	7	35	41	17	2	26	11	14	45	31	8	40	3	24	33	23
19	18	48	43	10	37	21	6	49	5	27	13	34	16	47	38	22	29	12	30	41
17	3	31	7	1	13	32	2	23	47	25	29	43	19	11	46	15	5	50	42	37

What's Wrong With Getting a Haircut?

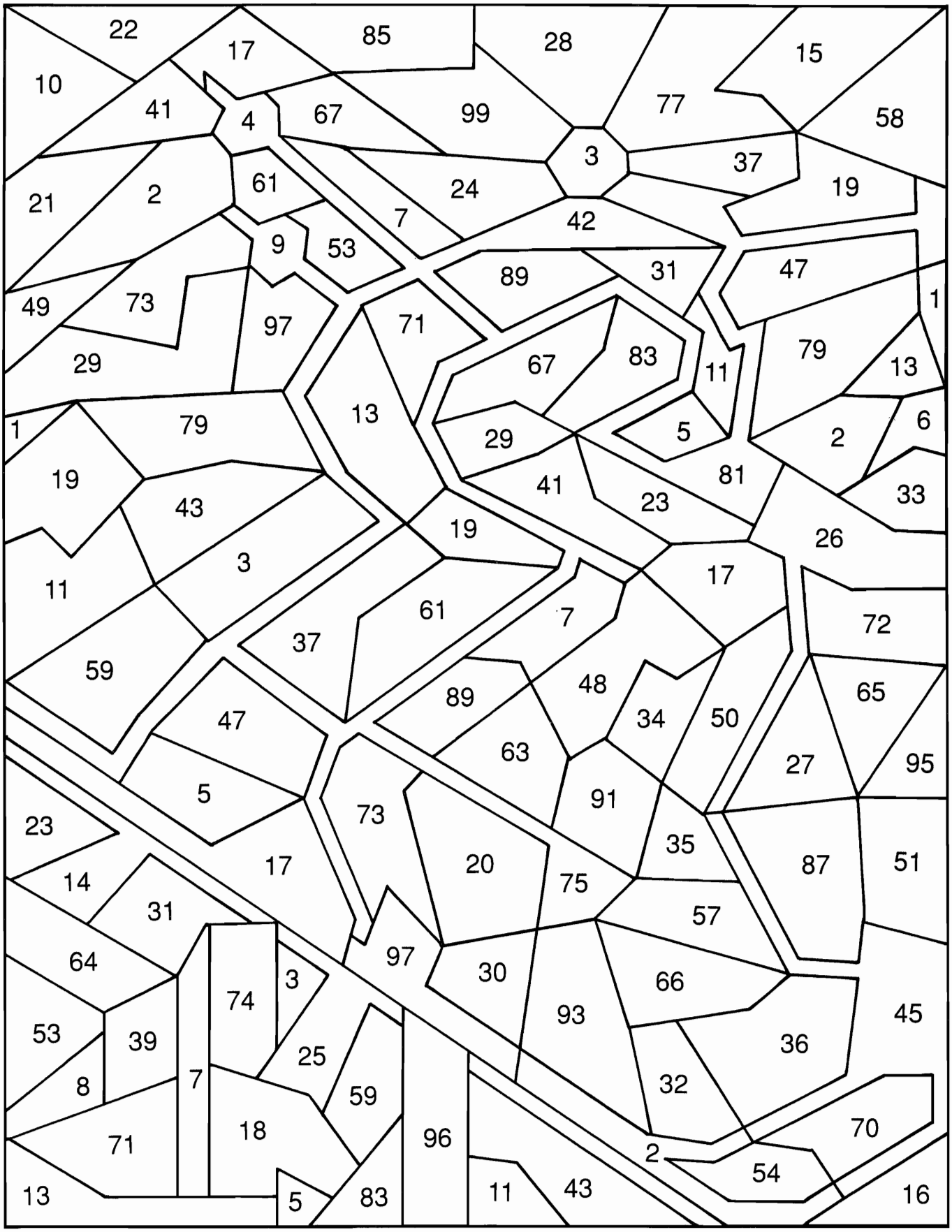
Cross out each box containing a number that is not prime. When you're finished, only the boxes containing prime numbers will be left. Write the letters from these boxes into the spaces at the bottom of the page.

1 H	2 I	3 T	4 A	5 I	6 R	7 S	8 H	9 O	10 R
11 B	12 R	13 E	14 T	15 R	16 Y	17 T	18 O	19 T	20 U
21 T	22 H	23 E	24 S	25 I	26 N	27 W	28 E	29 R	30 E
31 T	32 O	33 O	34 F	35 F	36 L	37 O	38 N	39 G	40 O
41 G	42 R	43 E	44 T	45 W	46 E	47 T	48 V	49 E	50 N
51 X	52 O	53 T	54 L	55 E	56 S	57 S	58 P	59 H	60 O
61 E	62 N	63 H	64 E	65 A	66 D	67 M	68 E	69 Y	70 A
71 A	72 B	73 L	74 E	75 G	76 R	77 O	78 W	79 L	80 S
81 Q	82 U	83 C	84 H	85 A	86 I	87 R	88 A	89 U	90 P
91 B	92 Y	93 E	94 S	95 I	96 S	97 T	98 E	99 V	100 E



PRIME TIME

Shade in each area that contains a prime number. Use a pencil so you can erase.



Why Did the Horse Eat With Its Mouth Open?

Write the prime factorization for each number. Find your answer in the adjacent answer list. Write the letter of the answer in each box containing the number of the exercise.

(1) 12	(2) 20	(3) 35	(U) $2 \times 3 \times 5$ (B) $2^2 \times 3$ (E) 5×7 (G) $2^2 \times 7$ (H) $2^2 \times 5$
(4) 36	(5) 75	(6) 99	(D) 3×5^2 (J) 2×3^2 (M) $3^2 \times 11$ (R) $2^2 \times 3^2$ (F) $2 \times 5 \times 11$
(7) 60	(8) 56	(9) 26	(K) 23×5 (I) 2×13 (C) $2 \times 5 \times 7$ (L) $2^3 \times 7$ (S) $2^2 \times 3 \times 5$
(10) 81	(11) 100	(12) 90	(A) $2^2 \times 5^2$ (O) 2×3^3 (N) 3^4 (T) $2 \times 3^2 \times 5$ (P) $2^3 \times 3 \times 5$

9	12	2	11	5	1	11	5	7	12	11	1	8	3	6	11	10	10	3	4	7

Why Did the Dog Have to Go to Court?

Write the prime factorization for each number. Find your answer in the answer list.
Write the letter of the answer in each box containing the number of the exercise.

(1) 30	(2) 42	(3) 18	Answers 1 – 3: (Y) $2^2 \times 5$ (A) $2 \times 3 \times 5$ (T) 2×3^2 (C) $3^2 \times 5$ (I) $2 \times 3 \times 7$
(4) 50	(5) 24	(6) 45	Answers 4 – 6: (O) $3^2 \times 5$ (M) $2^2 \times 5$ (N) 2×5^2 (G) $2 \times 3 \times 5^2$ (E) $2^3 \times 3$
(7) 84	(8) 66	(9) 80	Answers 7 – 9: (P) $2^3 \times 11$ (I) $2^2 \times 3 \times 7$ (T) $2 \times 3 \times 11$ (A) $2 \times 3^2 \times 7$ (C) $2^4 \times 5$

(10) 63
(11) 48
(12) 39
(13) 88
(14) 144

Answers 10 – 14:

(S) $2^3 \times 5$	(I) $3^2 \times 7$
(G) 3×13	(K) $2^4 \times 3^2$
(N) $3^2 \times 11$	(T) $2^3 \times 11$
(A) $2^4 \times 3$	(E) $2 \times 3 \times 7$

(15) 120
(16) 98
(17) 64
(18) 650
(19) 1,000

Answers 15 – 19:

(T) 2×7^2	(G) $2^3 \times 3 \times 5$
(N) $2^4 \times 3$	(B) $2^3 \times 5^3$
(R) 2^6	(S) $2 \times 3^2 \times 7$
(L) $3^4 \times 5$	(K) $2 \times 5^2 \times 13$

10	3	15	6	8	11	19	1	17	14	7	4	12	16	2	9	18	5	13

HOW CAN YOU TELL IF A SHARK LIKES YOU?

Find the greatest common factor (GCF) for each pair of numbers. Write the letter next to the answer in the box containing the exercise number. If the answer has a ●, shade in the box instead of writing a letter in it.

(1) GCF of 14 and 21

(2) GCF of 10 and 12

(3) GCF of 15 and 25

(4) GCF of 6 and 15

(5) GCF of 36 and 27

(6) GCF of 22 and 33

(7) GCF of 60 and 20

Answers 1 – 7:

(P)	1	(N)	8
(E)	2	●	9
(I)	3	(T)	11
(A)	5	(L)	12
(O)	6	(E)	20
(S)	7	(R)	30

---

(8) GCF of 12 and 9

(9) GCF of 24 and 16

(10) GCF of 45 and 20

(11) GCF of 12 and 42

(12) GCF of 30 and 50

(13) GCF of 36 and 12

(14) GCF of 100 and 250

Answers 8 – 14:

(W)	1	(N)	9
(O)	3	(A)	10
●	5	(R)	12
(E)	6	●	15
(L)	7	(C)	40
(H)	8	(T)	50

---

(15) GCF of 24 and 30

(16) GCF of 8 and 15

(17) GCF of 28 and 12

(18) GCF of 18 and 40

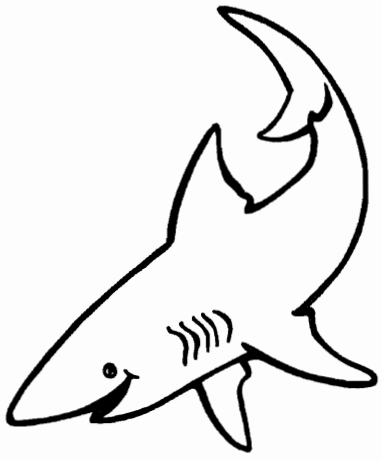
(19) GCF of 64 and 16

(20) GCF of 30 and 75

(21) GCF of 180 and 54

Answers 15 – 21:

●	1	(A)	10
(T)	2	●	12
(N)	4	(H)	15
(E)	6	(K)	16
(S)	7	(B)	18
(G)	9	(R)	24



9	15	5	14	12	19	7	1	16	3	17	8	6	20	2	13	10	21	4	18	11

Why Did Igor Spend 10 Years Studying Geology?

Find the least common multiple (LCM) for each pair of numbers. Look for your answer in the set of boxes under the exercise. Write the letter of the exercise in the box containing the answer.

(T) LCM of 3 and 5

(E) LCM of 4 and 6

(A) LCM of 2 and 9

(O) LCM of 10 and 4

(H) LCM of 9 and 12

(E) LCM of 6 and 5

(B) LCM of 7 and 21

(W) LCM of 10 and 70

(D) LCM of 5 and 2

(E) LCM of 15 and 9

(T) LCM of 11 and8

(N) LCMof 12 and 20

36	45	72	70	18	60	15	30	10	180	88	20	90	21	12

(S) LCM of 8 and 6

(A) LCM of 15 and 25

(O) LCM of 4 and 8

(I) LCM of 6 and 9

(K) LCM of 8 and 10

(A) LCM of 9 and 4

(B) LCM of 10 and 6

(R) LCM of 7 and 8

(G) LCM of 25 and 10

(C) LCM of 45 and 15

(R) LCM of 30 and 40

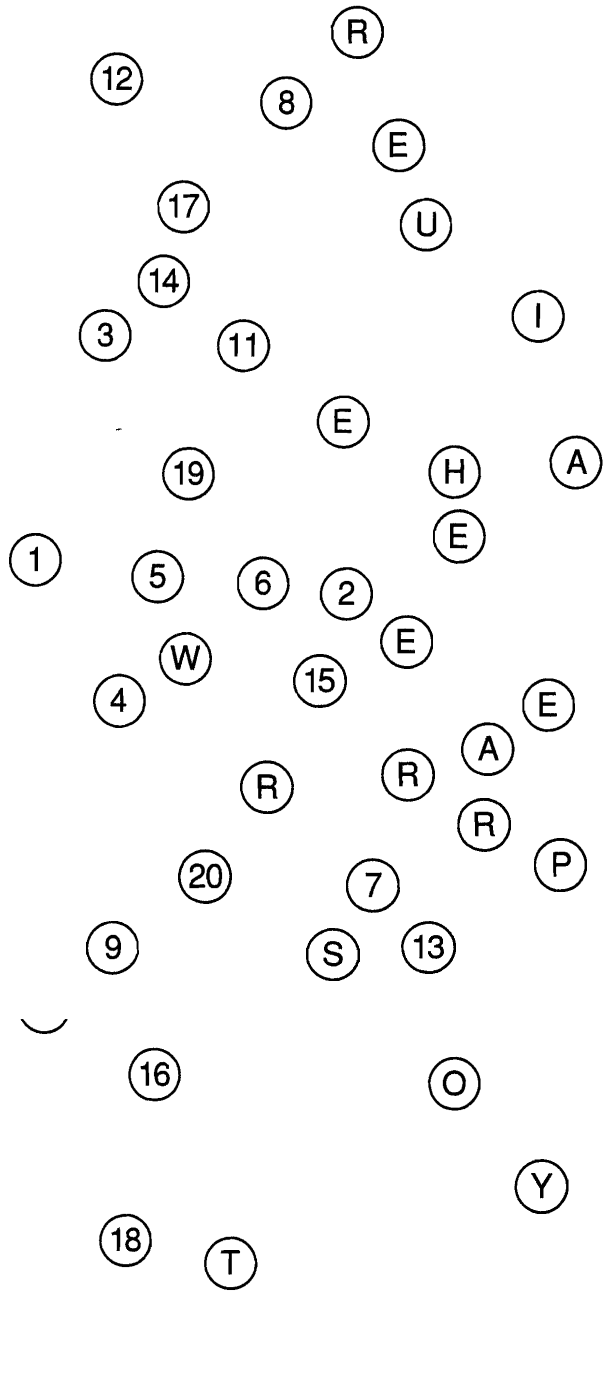
(T) LCM of 24 and 9

75	180	30	18	50	48	120	8	45	40	150	24	72	36	56

What Did Captain Hook Say in the Bakery?

Find the GCF or LCM for each exercise. Draw a straight line connecting the square by the exercise to the square by its answer. The line will cross a number and a letter. Write the letter in the matching numbered box at the bottom of the page.

1. GCF of 6 and 10 ◆
2. GCF of 22 and 99 ◆
3. GCF of 30 and 18 ◆
4. GCF of 9 and 16 ◆
5. GCF of 70 and 21 ◆
6. LCM of 4 and 10 ◆
7. LCM of 12 and 8 ◆
8. LCM of 25 and 4 ◆
9. LCM of 40 and 12 ◆
10. LCM of 15 and 75 ◆
11. GCF of 10 and 15 ◆
12. LCM of 10 and 15 ◆
13. GCF of 20 and 8 ◆
14. LCM of 20 and 8 ◆
15. GCF of 12 and 15 ◆
16. LCM of 12 and 15 ◆
17. GCF of 18 and 36 ◆
18. LCM of 18 and 36 ◆
19. GCF of 24 and 16 ◆
20. LCM of 24 and 16 ◆



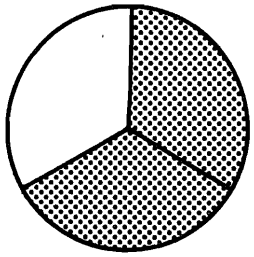
◆ 6
◆ 120
◆ 30
◆ 60
◆ 2
◆ 7
◆ 48
◆ 40
◆ 11
+ 24
◆ 18
◆ 8
◆ 1
◆ 20
+ 75
◆ 100
◆ 3
◆ 5
◆ 4
◆ 36

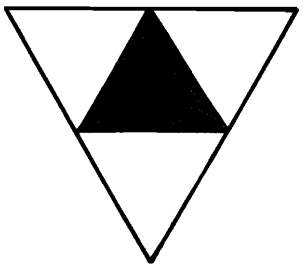
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

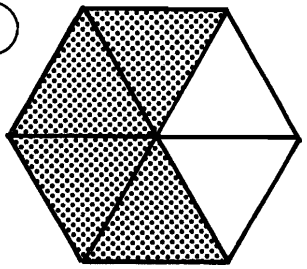
How Do You Get 27 Kids to Carve a Statue?

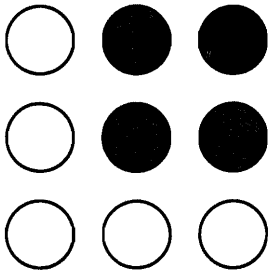
Find your answer for each exercise at the bottom of the page and write the letter of the exercise above it. (Do not reduce answers.)

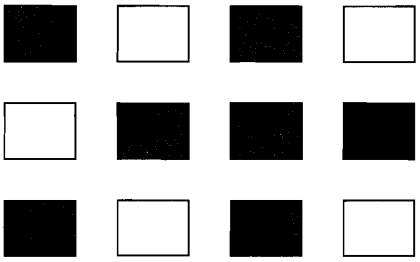
I. Write a fraction for the part that is shaded.

(E) 

(N) 

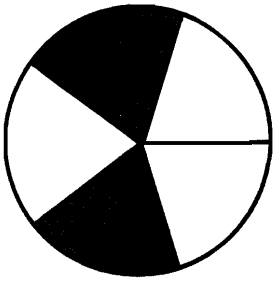
(I) 

(A) 

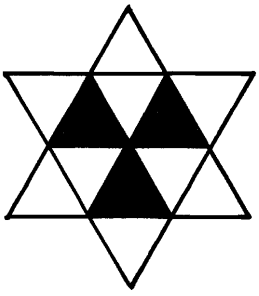
(C) 

(E) 

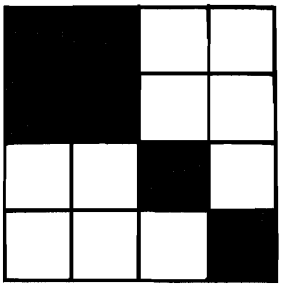
II. Write a fraction for the part named.



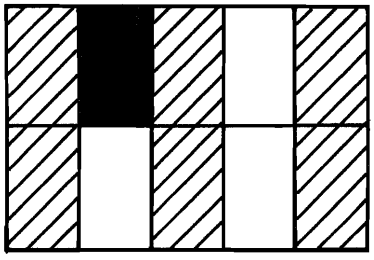
(R) shaded (I) unshaded



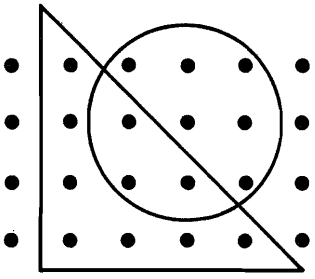
(E) shaded (H) unshaded



(Y) shaded (V) unshaded



(E) shaded
(N) striped
(V) shaded or striped



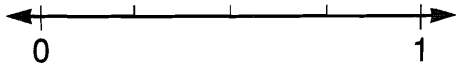
(P) in the ◯
(O) in the ◺
(H) in both the ◯ and ◺

$\frac{9}{12}$	$\frac{4}{9}$	$\frac{10}{16}$	$\frac{5}{7}$	$\frac{7}{24}$	$\frac{2}{3}$	$\frac{7}{10}$	$\frac{1}{10}$	$\frac{2}{5}$	$\frac{6}{16}$	$\frac{10}{24}$	$\frac{1}{4}$	$\frac{3}{12}$	$\frac{5}{16}$	$\frac{7}{12}$	$\frac{3}{24}$	$\frac{4}{6}$	$\frac{9}{24}$	$\frac{5}{10}$	$\frac{3}{5}$	$\frac{6}{10}$

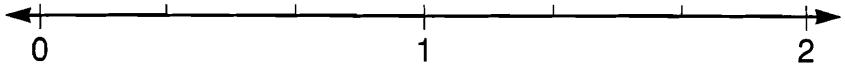
What Did the Boy Snake Say to the Girl Snake?

Write a fraction for the length of the bar above each number line. Find your answer at the bottom of the page and write the letter of the exercise above it.

U



O



A

I

T

H

I

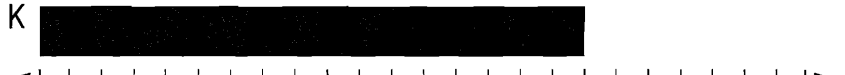
U

A

S

O

K



W

Q

B

S

C

H

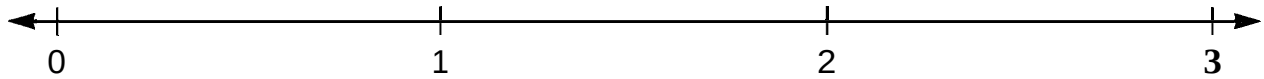
$\frac{5}{4}$	$\frac{5}{3}$	$\frac{7}{12}$	$\frac{9}{10}$	$\frac{5}{6}$	$\frac{3}{10}$	$\frac{2}{9}$	$\frac{10}{7}$	$\frac{4}{5}$	$\frac{7}{16}$	$\frac{1}{3}$	$\frac{3}{13}$	$\frac{14}{9}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{17}{12}$	$\frac{5}{8}$	$\frac{17}{10}$	$\frac{3}{2}$	$\frac{15}{8}$	$\frac{19}{16}$

How Do You Turn a Banana into a Vegetable?

Divide each number line as indicated. Then locate the given numbers. Write the letter of each exercise above the number line at the corresponding point.

(R) $\frac{3}{2}$ (W) $\frac{5}{2}$ (H) $\frac{2}{2}$ (O) $\frac{4}{2}$ (T) $\frac{1}{2}$

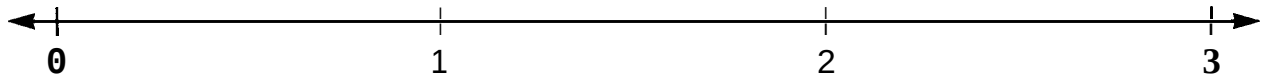
halves



(T) $\frac{2}{3}$ (U) $\frac{4}{3}$ (N) $\frac{8}{3}$ (I) $\frac{1}{3}$ (D) $\frac{9}{3}$

(A) $2\frac{1}{3}$ (P) $\frac{5}{3}$

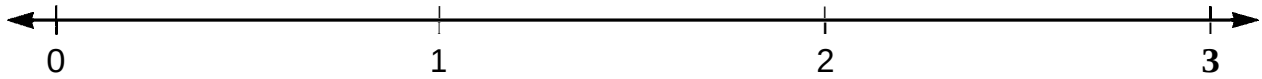
thirds



(L) $\frac{6}{4}$ (T) $\frac{1}{4}$ (E) $2\frac{3}{4}$ (I) $\frac{4}{4}$ (O) $\frac{9}{4}$

(W) $\frac{3}{4}$ (I) $\frac{0}{4}$ (L) $1\frac{1}{4}$ (M) $\frac{10}{4}$ (C) $\frac{8}{4}$

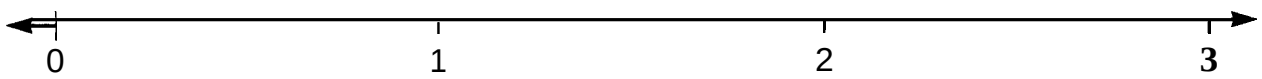
fourths



(S) $\frac{8}{5}$ (O) $\frac{3}{5}$ (A) $\frac{11}{5}$ (N) $\frac{5}{5}$ (H) $2\frac{3}{5}$

(D) $\frac{2}{5}$ (U) $\frac{10}{5}$ (W) $\frac{4}{5}$ (Q) $1\frac{4}{5}$ (S) $\frac{12}{5}$

fifths



What Is Rock 'N' Roll?

For each exercise, write >, <, or = in the ◯. Circle the appropriate number-letter. Write the letter in the matching numbered box at the bottom of the page.

		>	<	=
1	$\frac{3}{8}$ ◯ $\frac{1}{2}$	29-L	10-H	15-F
2	$\frac{5}{8}$ ◯ $\frac{1}{2}$	19-A	24-M	16-P
3	$\frac{2}{4}$ ◯ $\frac{1}{2}$	21-U	4-G	31-I
4	$\frac{5}{12}$ ◯ $\frac{1}{2}$	29-V	15-T	8-K
5	$\frac{7}{12}$ ◯ $\frac{1}{2}$	5-N	16-B	33-E
6	$\frac{5}{10}$ ◯ $\frac{1}{2}$	1-S	21-R	24-O
7	$\frac{3}{5}$ ◯ $\frac{1}{2}$	29-E	13-V	25-W
8	$\frac{2}{5}$ ◯ $\frac{1}{2}$	23-M	4-A	18-D
9	$\frac{3}{7}$ ◯ $\frac{1}{2}$	12-P	16-S	27-K
10	$\frac{4}{7}$ ◯ $\frac{1}{2}$	8-I	14-U	20-N
11	$\frac{3}{6}$ ◯ $\frac{1}{2}$	34-B	3-G	21-D
12	$\frac{11}{20}$ ◯ $\frac{1}{2}$	33-T	6-F	13-L
13	$\frac{5}{9}$ ◯ $\frac{1}{2}$	1-A	18-P	28-N
14	$\frac{7}{16}$ ◯ $\frac{1}{2}$	9-G	13-H	12-C
15	$\frac{5}{11}$ ◯ $\frac{1}{2}$	32-R	27-I	7-L
16	$\frac{6}{11}$ ◯ $\frac{1}{2}$	23-T	6-E	20-U
17	$\frac{9}{16}$ ◯ $\frac{1}{2}$	14-A	22-S	26-M
18	$\frac{4}{9}$ ◯ $\frac{1}{2}$	28-R	34-O	2-T
19	$\frac{51}{100}$ ◯ $\frac{1}{2}$	18-H	9-N	3-C
20	$\frac{1}{2}$ ◯ $\frac{1}{3}$	6-D	26-F	11-E
21	$\frac{1}{2}$ ◯ $\frac{8}{16}$	7-M	30-R	12-T
22	$\frac{1}{2}$ ◯ $\frac{7}{15}$	32-N	20-J	2-L
23	$\frac{1}{2}$ ◯ $\frac{8}{15}$	9-P	28-T	17-S
24	$\frac{1}{2}$ ◯ $\frac{25}{50}$	3-F	25-A	9-C
25	$\frac{1}{2}$ ◯ $\frac{7}{10}$	11-S	20-R	26-V
26	$\frac{1}{2}$ ◯ $\frac{2}{3}$	30-N	3-S	7-R
27	$\frac{1}{2}$ ◯ $\frac{16}{32}$	2-T	17-O	26-B
28	$\frac{1}{2}$ ◯ $\frac{50}{100}$	25-P	22-Y	7-W

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34

What Did the Mermaid Do on Saturday Night?

For each exercise, circle the best choice. Write the letter next to your answer in the box containing the exercise number.

I. Circle the fraction that tells about how much of each bar is shaded.

1. 

(L) $\frac{1}{10}$ (T) $\frac{7}{8}$ (A) $\frac{4}{9}$

2. 

(Y) $\frac{5}{6}$ (K) $\frac{2}{15}$ (E) $\frac{6}{11}$

3. 

(N) $\frac{9}{20}$ (O) $\frac{2}{17}$ (V) $\frac{4}{7}$

4. 

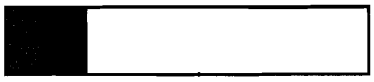
(H) $\frac{7}{16}$ (I) $\frac{1}{5}$ (B) $\frac{11}{14}$

5. 

(R) $\frac{7}{10}$ (P) $\frac{10}{21}$ (S) $\frac{1}{9}$

6. 

(G) $\frac{3}{7}$ (F) $\frac{3}{19}$ (E) $\frac{11}{13}$

7. 

(U) $\frac{7}{15}$ (I) $\frac{3}{14}$ (M) $\frac{3}{5}$

8. 

(J) $\frac{1}{8}$ (D) $\frac{4}{9}$ (T) $\frac{14}{17}$

9. 

(H) $\frac{7}{12}$ (A) $\frac{13}{16}$ (R) $\frac{3}{10}$

II. Circle the fraction that matches the description given.

10. Close to 0 (N) $\frac{3}{7}$ (Y) $\frac{17}{20}$ (E) $\frac{1}{10}$	11. Close to $\frac{1}{2}$ (I) $\frac{8}{15}$ (C) $\frac{4}{5}$ (P) $\frac{3}{16}$	12. Close to 1 (K) $\frac{3}{8}$ (W) $\frac{8}{9}$ (F) $\frac{7}{13}$
13. Close to 0 (O) $\frac{5}{9}$ (E) $\frac{2}{13}$ (R) $\frac{17}{18}$	14. Close to $\frac{1}{2}$ (N) $\frac{2}{9}$ (S) $\frac{9}{10}$ (T) $\frac{5}{11}$	15. Close to 1 (T) $\frac{3}{5}$ (H) $\frac{17}{20}$ (O) $\frac{7}{16}$
16. Close to 0 (R) $\frac{5}{12}$ (E) $\frac{9}{8}$ (T) $\frac{7}{100}$	17. Close to $\frac{1}{2}$ (W) $\frac{9}{16}$ (K) $\frac{16}{9}$ (F) $\frac{2}{7}$	18. Close to 1 (N) $\frac{10}{17}$ (C) $\frac{1}{10}$ (D) $\frac{13}{12}$
19. Less than $\frac{1}{2}$ (G) $\frac{2}{3}$ (N) $\frac{6}{14}$ (R) $\frac{9}{16}$	20. More than $\frac{1}{2}$ (U) $\frac{13}{25}$ (L) $\frac{2}{5}$ (I) $\frac{49}{100}$	21. Less than 1 (M) $\frac{8}{7}$ (G) $\frac{20}{19}$ (T) $\frac{19}{20}$

5	15	10		17	2	19	8		3	20	14		12	7	16	4		1	9	13		21	11	18	6

Why Is Tuesday the Favorite Day of Math Teachers?

For each exercise, write the missing number. Find your answer in the set of boxes under the exercise. Write the letter of the exercise in the box containing the answer.

(E) $\frac{2}{3} = \frac{2 \times 5}{3 \times 5} = \frac{\quad}{15}$ (T) $\frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{\quad}$ (H) $\frac{3}{7} = \frac{3 \times 8}{7 \times 8} = \frac{\quad}{56}$ (Y) $\frac{5}{8} = \frac{5 \times 4}{8 \times 4} = \frac{20}{\quad}$

(A) $\frac{1}{2} = \frac{1 \times 15}{2 \times 15} = \frac{\quad}{30}$ (S) $\frac{3}{5} = \frac{3 \times 6}{5 \times 6} = \frac{18}{\quad}$ (T) $\frac{7}{12} = \frac{7 \times 2}{12 \times 2} = \frac{\quad}{24}$ (O) $\frac{4}{9} = \frac{4 \times 9}{9 \times 9} = \frac{36}{\quad}$

(H) $\frac{2}{5} = \frac{\quad}{20}$ (I) $\frac{3}{4} = \frac{\quad}{36}$ (A) $\frac{1}{6} = \frac{\quad}{18}$ (T) $\frac{7}{10} = \frac{\quad}{80}$ (L) $\frac{5}{12} = \frac{\quad}{60}$

(Y) $\frac{6}{7} = \frac{36}{\quad}$ (I) $\frac{4}{15} = \frac{12}{\quad}$ (T) $\frac{3}{8} = \frac{30}{\quad}$ (N) $\frac{1}{3} = \frac{\quad}{27}$ (D) $\frac{3}{20} = \frac{\quad}{40}$

27	12	11	45	30	96	56	8	10	20	81	9	25	32	49	6	15	42	5	80	24	3	14	64

(A) $\frac{5}{7} = \frac{\quad}{21}$ (U) $\frac{1}{9} = \frac{\quad}{63}$ (E) $\frac{5}{6} = \frac{\quad}{30}$ (A) $\frac{2}{11} = \frac{18}{\quad}$ (S) $\frac{9}{25} = \frac{36}{\quad}$

(E) $\frac{3}{10} = \frac{18}{\quad}$ (R) $\frac{7}{16} = \frac{21}{\quad}$ (A) $\frac{4}{5} = \frac{\quad}{10}$ sb $= \frac{\quad}{180}$ (D) $\frac{7}{20} = \frac{\quad}{100}$

(A) $\frac{7}{8} = \frac{\quad}{32}$ (E) $\frac{1}{5} = \frac{\quad}{55}$ (R) $\frac{8}{9} = \frac{24}{\quad}$ (N) $\frac{2}{15} = \frac{4}{\quad}$ (T) $\frac{9}{10} = \frac{36}{\quad}$

(B) $\frac{4}{7} = \frac{40}{\quad}$ (M) $\frac{3}{4} = \frac{\quad}{100}$ (N) $\frac{3}{16} = \frac{\quad}{48}$ (F) $\frac{7}{12} = \frac{\quad}{144}$ (M) $\frac{19}{20} = \frac{\quad}{100}$

10	28	100	4	30	15	75	25	35	22	99	84	40	60	27	63	8	39	9	7	95	70	11	48

What Did the Doctor Say to the Guy Who Thought He Was a Wigwam One Day and a Tepee the Next?

Circle one fraction in each set. Notice the letter above it. Write this letter in the box at the bottom of the page that contains the exercise number.

I. Circle the fraction that is equivalent to the first fraction in the set.

1	G	T	V	
	$\frac{1}{3}$	$\frac{2}{9}$	$\frac{4}{12}$	$\frac{5}{18}$

2	I	P	O	
	$\frac{2}{5}$	$\frac{6}{12}$	$\frac{18}{40}$	$\frac{14}{35}$

3	F	M	E	
	$\frac{3}{4}$	$\frac{9}{16}$	$\frac{21}{32}$	$\frac{15}{20}$

4	A	W	L	
	$\frac{5}{8}$	$\frac{30}{48}$	$\frac{20}{24}$	$\frac{45}{64}$

5	K	S	C	
	$\frac{4}{9}$	$\frac{2}{3}$	$\frac{12}{27}$	$\frac{28}{72}$

6	B	E	R	
	$\frac{6}{7}$	$\frac{7}{8}$	$\frac{48}{56}$	$\frac{24}{35}$

7	N	F	U	
	$\frac{7}{10}$	$\frac{42}{50}$	$\frac{6}{9}$	$\frac{70}{100}$

8	T	A	O	
	$\frac{5}{12}$	$\frac{20}{48}$	$\frac{10}{36}$	$\frac{30}{84}$

9	H	T	E	
	$\frac{1}{2}$	$\frac{7}{15}$	$\frac{16}{30}$	$\frac{12}{24}$

II. Circle the fraction that is in lowest terms.

10	V	I	U	M
	$\frac{5}{10}$	$\frac{6}{9}$	$\frac{3}{8}$	$\frac{2}{6}$

11	N	Y	L	S
	$\frac{4}{8}$	$\frac{2}{9}$	$\frac{15}{25}$	$\frac{10}{14}$

12	G	P	O	A
	$\frac{6}{8}$	$\frac{3}{9}$	$\frac{7}{12}$	$\frac{20}{45}$

13	D	T	L	R
	$\frac{4}{12}$	$\frac{9}{15}$	$\frac{2}{4}$	$\frac{5}{6}$

14	P	B	N	S
	$\frac{12}{18}$	$\frac{7}{14}$	$\frac{9}{12}$	$\frac{8}{15}$

15	T	H	F	Y
	$\frac{10}{21}$	$\frac{4}{32}$	$\frac{6}{10}$	$\frac{15}{24}$

16	C	J	G	W
	$\frac{8}{22}$	$\frac{9}{16}$	$\frac{10}{35}$	$\frac{3}{12}$

17	E	I	R	O
	$\frac{6}{15}$	$\frac{7}{42}$	$\frac{11}{33}$	$\frac{12}{25}$

18	N	D	K	X
	$\frac{4}{5}$	$\frac{12}{16}$	$\frac{15}{36}$	$\frac{2}{8}$

11	2	7	4	13	6	16	10	14	1	8	17	12	15	3	18	5	9

What Did George Washington Say To His Men On March 3?

Write each fraction in lowest terms. Find your answer in the adjacent answer columns. Write the letter of the exercise in the box containing the number of the answer.

W	$\frac{3}{9}$				I	$\frac{3}{24}$			
O	$\frac{2}{8}$				T	$\frac{8}{18}$			
L	$\frac{5}{10}$	12	$\frac{3}{5}$	25	$\frac{1}{4}$	O	$\frac{9}{15}$	4	$\frac{3}{5}$	17	$\frac{3}{4}$
T	$\frac{4}{6}$	5	$\frac{2}{5}$	1	$\frac{2}{3}$	R	$\frac{7}{21}$	2	$\frac{2}{3}$	15	$\frac{1}{2}$
H	$\frac{9}{12}$	10	$\frac{1}{3}$	19	$\frac{5}{6}$	W	$\frac{10}{12}$	20	$\frac{1}{3}$	27	$\frac{4}{9}$
R	$\frac{10}{25}$	22	$\frac{3}{4}$	16	$\frac{1}{2}$	L	$\frac{4}{8}$	14	$\frac{1}{8}$	8	$\frac{5}{6}$

Answers: **Answers:**

R	$\frac{10}{16}$				O	$\frac{20}{30}$			
H	$\frac{15}{20}$				C	$\frac{8}{16}$			
E	$\frac{3}{30}$	11	$\frac{1}{10}$	6	$\frac{5}{8}$	F	$\frac{10}{45}$	19	$\frac{5}{12}$	24	$\frac{2}{9}$
O	$\frac{12}{14}$	9	$\frac{3}{8}$	18	$\frac{4}{5}$	M	$\frac{14}{20}$	7	$\frac{2}{3}$	23	$\frac{3}{5}$
M	$\frac{16}{20}$	13	$\frac{1}{6}$	28	$\frac{3}{4}$	A	$\frac{15}{36}$	26	$\frac{3}{8}$	3	$\frac{7}{10}$
W	$\frac{6}{36}$	2	$\frac{6}{7}$	12	$\frac{2}{5}$	R	$\frac{21}{56}$	17	$\frac{2}{7}$	21	$\frac{1}{2}$

Answers: **Answers:**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

Where can you hear MUSIC on an ocean liner?

Write each fraction in lowest terms. Find your answer at the right and mark the letter next to it. For each set of exercises, there is one extra answer. Write the letter of this answer in the corresponding box at the bottom of the page.

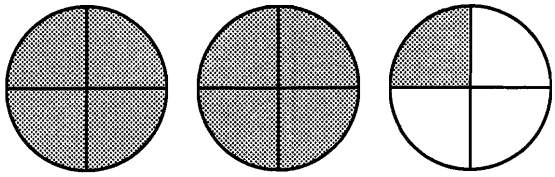
1	$\frac{6}{9}$ =	$\frac{2}{10}$ =	$\frac{20}{35}$ =	(L) $\frac{1}{5}$	(B) $\frac{2}{3}$	(E) $\frac{2}{7}$	(V) $\frac{4}{7}$
2	$\frac{2}{16}$ =	$\frac{15}{18}$ =	$\frac{20}{90}$ =	(C) $\frac{4}{5}$	(H) $\frac{3}{4}$	(F) $\frac{2}{9}$	(O) $\frac{5}{6}$
3	$\frac{25}{75}$ =	$\frac{12}{32}$ =	$\frac{42}{49}$ =	(G) $\frac{6}{7}$	(D) $\frac{3}{8}$	(A) $\frac{3}{7}$	(R) $\frac{1}{3}$
4	$\frac{10}{24}$ =	$\frac{15}{27}$ =	$\frac{50}{100}$ =	(I) $\frac{1}{2}$	(M) $\frac{5}{12}$	(G) $\frac{5}{9}$	(E) $\frac{5}{8}$
5	$\frac{5}{40}$ =	$\frac{8}{30}$ =	$\frac{24}{36}$ =	(R) $\frac{1}{8}$	(T) $\frac{4}{9}$	(N) $\frac{4}{15}$	(L) $\frac{2}{3}$
6	$\frac{12}{30}$ =	$\frac{21}{36}$ =	$\frac{60}{80}$ =	(D) $\frac{7}{20}$	(C) $\frac{7}{12}$	(F) $\frac{2}{5}$	(E) $\frac{3}{4}$
7	$\frac{70}{100}$ =	$\frac{250}{1,000}$ =	$\frac{16}{24}$ =	(W) $\frac{7}{10}$	(U) $\frac{2}{3}$	(R) $\frac{1}{4}$	(H) $\frac{7}{8}$
8	$\frac{8}{28}$ =	$\frac{10}{60}$ =	$\frac{45}{100}$ =	(E) $\frac{1}{6}$	(K) $\frac{2}{5}$	(S) $\frac{9}{20}$	(H) $\frac{2}{7}$
9	$\frac{75}{100}$ =	$\frac{8}{36}$ =	$\frac{21}{24}$ =	(D) $\frac{7}{8}$	(T) $\frac{7}{12}$	(L) $\frac{3}{4}$	(N) $\frac{2}{9}$
10	$\frac{18}{36}$ =	$\frac{55}{75}$ =	$\frac{120}{150}$ =	(A) $\frac{4}{5}$	(R) $\frac{11}{15}$	(E) $\frac{2}{3}$	(S) $\frac{1}{2}$
11	40 minutes is what fraction of an hour?					(M) $\frac{1}{4}$	(P) $\frac{3}{5}$
	3 inches is what fraction of a foot?						
	10 ounces is what fraction of a pound?					(D) $\frac{2}{3}$	(G) $\frac{5}{8}$

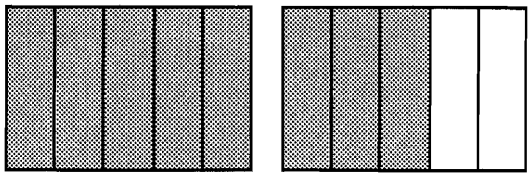
5	7	1	9	3	11	4	6	10	2	8

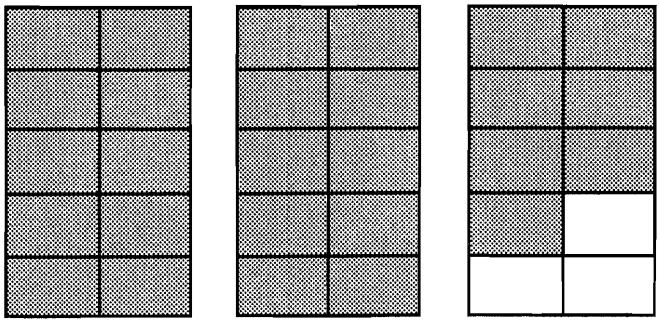
What Is the World's Most Musical Fish?

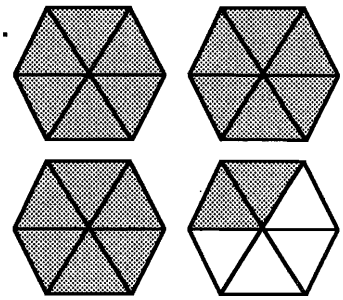
Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

1. Write a mixed number with the fraction in lowest terms for each shaded region.

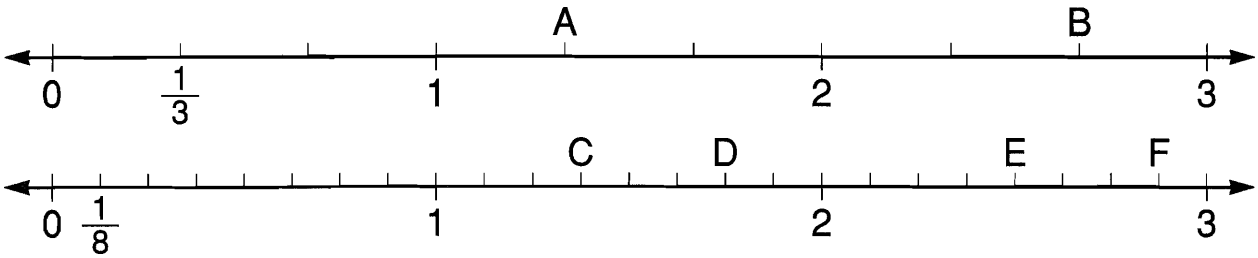
A. 

B. 

C. 

D. 

2. Write a mixed number with the fraction in lowest terms for each lettered point.



3. Write each quotient as a mixed number with the fraction in lowest terms.

A. $25 \div 6$

B. $19 \div 7$

C $34 \div 10$

D. $50 \div 9$

E. $22 \div 12$

F. $90 \div 20$

G. A table is 39 inches wide. Express this measurement in feet.

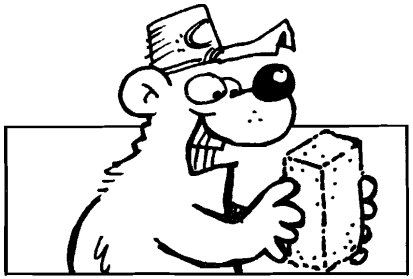
_____ ft

H. Smedley ran 440 yards in 78 seconds. Express this time in minutes.

_____ min

SC $2\frac{1}{2}$	AL $2\frac{5}{7}$	TH $4\frac{2}{3}$	AT $4\frac{1}{2}$	IM $2\frac{1}{4}$	ST $1\frac{3}{8}$	EP $1\frac{1}{5}$	ET $1\frac{3}{10}$	TR $2\frac{7}{8}$	IA $1\frac{6}{7}$	LS $3\frac{2}{5}$	EE $3\frac{1}{3}$
NO $3\frac{5}{6}$	TE $3\frac{1}{4}$	SO $2\frac{7}{10}$	TU $2\frac{1}{6}$	BA $1\frac{5}{6}$	RN $1\frac{1}{3}$	UP $1\frac{3}{5}$	FU $5\frac{5}{9}$	NA $2\frac{4}{9}$	ME $4\frac{1}{6}$	SO $1\frac{3}{4}$	NG $2\frac{2}{3}$

* It knows its scales.



What Is the Difference Between a 16-Ounce Brick and a Carpenter?

Do each exercise and find your answer in the set of boxes under it.
Write the letter of the exercise in the box containing the answer.

I. Write each improper fraction either as a mixed number with the fraction in lowest terms or as a whole number.

(S) $\frac{9}{4}$	(A) $\frac{18}{5}$	(E) $\frac{15}{8}$	(O) $\frac{31}{6}$	(D) $\frac{6}{4}$	(N) $\frac{12}{9}$
(G) $\frac{14}{8}$	(D) $\frac{16}{6}$	(A) $\frac{48}{10}$	(N) $\frac{20}{12}$	(O) $\frac{28}{7}$	(I) $\frac{27}{3}$
(U) $\frac{40}{11}$	(E) $\frac{44}{24}$	(W) $\frac{73}{10}$	(N) $\frac{26}{16}$	(H) $\frac{45}{15}$	(P) $\frac{100}{100}$

4	$1\frac{1}{3}$	$1\frac{5}{6}$	$3\frac{4}{11}$	$7\frac{3}{10}$	$1\frac{7}{8}$	9	$1\frac{3}{4}$	3	$2\frac{1}{4}$	$1\frac{1}{8}$	$4\frac{4}{5}$	$7\frac{9}{10}$	1	$5\frac{1}{6}$	$3\frac{7}{11}$	$1\frac{5}{8}$	$1\frac{1}{2}$	$4\frac{1}{5}$	$3\frac{3}{5}$	$1\frac{2}{3}$	$2\frac{2}{3}$

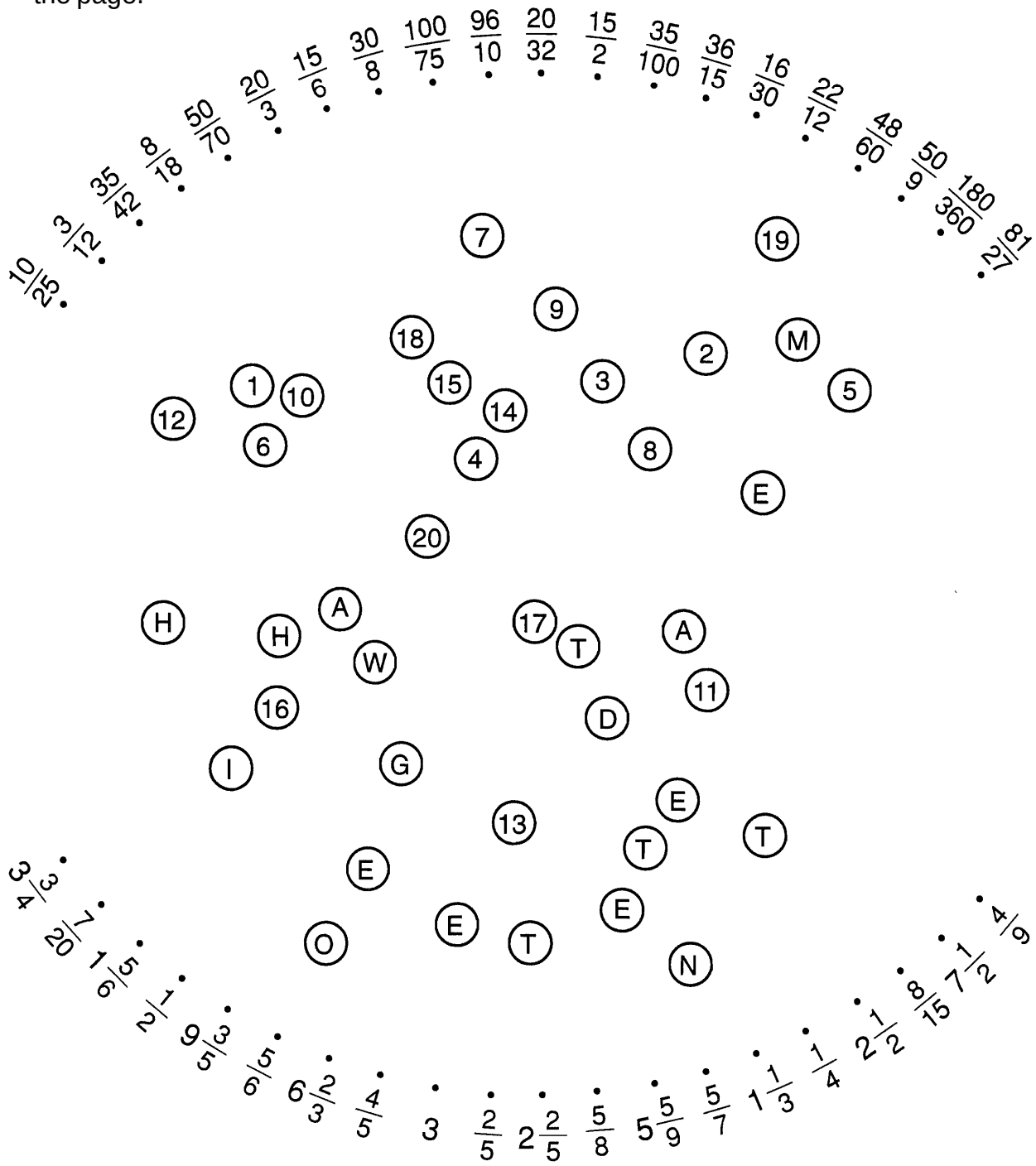
II. Write each mixed number as an improper fraction.

(H) $2\frac{2}{3}$	(A) $4\frac{1}{2}$	(T) $1\frac{7}{10}$	(O) $3\frac{1}{7}$	(E) $7\frac{2}{5}$	(S) $4\frac{5}{6}$
(T) $2\frac{3}{8}$	(D) $5\frac{5}{9}$	(E) $1\frac{7}{12}$	(H) $3\frac{1}{4}$	(Y) $4\frac{3}{16}$	(R) $10\frac{8}{15}$
(U) $2\frac{11}{24}$	(O) $1\frac{5}{7}$	(P) $9\frac{3}{4}$	(A) $4\frac{3}{5}$	(N) $33\frac{1}{3}$	(W) $17\frac{1}{2}$

$\frac{44}{9}$	$\frac{17}{10}$	$\frac{13}{4}$	$\frac{37}{5}$	$\frac{54}{24}$	$\frac{12}{7}$	$\frac{19}{8}$	$\frac{8}{3}$	$\frac{19}{12}$	$\frac{158}{15}$	$\frac{79}{16}$	$\frac{39}{4}$	$\frac{22}{7}$	$\frac{59}{24}$	$\frac{100}{3}$	$\frac{50}{9}$	$\frac{29}{6}$	$\frac{35}{4}$	$\frac{9}{2}$	$\frac{35}{2}$	$\frac{23}{5}$	$\frac{67}{16}$

Why Did the Football Coach Send in a Bunch of Second-String Players?

Simplify each fraction on the top curve and find your answer on the bottom curve. Draw a straight line connecting each exercise to its answer. The line will cross a number and a letter. Write the letter in the matching numbered box at the bottom of the page.



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

What Happens If You Watch TV All Day?

For each exercise, write the missing numerator(s). Then compare the fractions. Write > or < in each ◯.

Circle the letter in the corresponding column and write this letter in the box containing the exercise number.

				>	<
1	$\frac{2}{3} = \frac{\quad}{12}$	$\frac{3}{4} = \frac{\quad}{12}$	$\frac{2}{3}$ ◯ $\frac{3}{4}$	R	E
2	$\frac{1}{4} = \frac{\quad}{20}$	$\frac{2}{5} = \frac{\quad}{20}$	$\frac{1}{4}$ ◯ $\frac{2}{5}$	A	O
3	$\frac{5}{6} = \frac{\quad}{18}$	$\frac{7}{9} = \frac{\quad}{18}$	$\frac{5}{6}$ ◯ $\frac{7}{9}$	T	F
4	$\frac{5}{8} = \frac{\quad}{24}$	$\frac{2}{3} = \frac{\quad}{24}$	$\frac{5}{8}$ ◯ $\frac{2}{3}$	V	C
5	$\frac{2}{15} = \frac{\quad}{30}$	$\frac{1}{10} = \frac{\quad}{30}$	$\frac{2}{15}$ ◯ $\frac{1}{10}$	E	N
6	$\frac{3}{4} = \frac{\quad}{16}$		$\frac{3}{4}$ ◯ $\frac{11}{16}$	U	T
7	$\frac{5}{7} = \frac{\quad}{21}$		$\frac{5}{7}$ ◯ $\frac{17}{21}$	B	S
8	$\frac{2}{5} = \frac{\quad}{25}$		$\frac{2}{5}$ ◯ $\frac{9}{25}$	E	A
9	$\frac{7}{8} = \frac{\quad}{16}$		$\frac{7}{8}$ ◯ $\frac{13}{16}$	Y	F
10	$\frac{3}{4} = \frac{\quad}{20}$	$\frac{7}{10} = \frac{\quad}{20}$	$\frac{3}{4}$ ◯ $\frac{7}{10}$	K	H
11	$\frac{3}{8} = \frac{\quad}{24}$	$\frac{5}{12} = \frac{\quad}{24}$	$\frac{3}{8}$ ◯ $\frac{5}{12}$	D	G
12	$\frac{13}{15} = \frac{\quad}{30}$	$\frac{5}{6} = \frac{\quad}{30}$	$\frac{13}{15}$ ◯ $\frac{5}{6}$	I	O
13	$\frac{2}{9} = \frac{\quad}{36}$		$\frac{2}{9}$ ◯ $\frac{7}{36}$	S	L

9	2	6	11	8	3	13	1	5	7	12	4	10

BOOKS NEVER WRITTEN

Escape to the Forest by $\frac{}{13}$ $\frac{}{9}$ $\frac{}{17}$ $\frac{}{6}$ $\frac{}{8}$ $\frac{}{15}$ $\frac{}{7}$ $\frac{}{2}$ $\frac{}{3}$ $\frac{}{3}$ $\frac{}{15}$ $\frac{}{10}$

End of the Semester by $\frac{}{17}$ $\frac{}{14}$ $\frac{}{1}$ $\frac{}{16}$ $\frac{}{7}$ $\frac{}{11}$ $\frac{}{3}$ $\frac{}{16}$ $\frac{}{5}$

Stunt Driving for Fun by $\frac{}{4}$ $\frac{}{16}$ $\frac{}{4}$ $\frac{}{12}$ $\frac{}{17}$ $\frac{}{7}$ $\frac{}{16}$ $\frac{}{16}$ $\frac{}{10}$

ABOVE ARE THE TITLES OF THREE "BOOKS NEVER WRITTEN." TO DECODE THE NAMES OF THEIR AUTHORS:

For each exercise, compare the fractions or mixed numbers. Write > or < in each ◯. Circle the letter above the LARGER number. Write this letter above the exercise number each time it appears in the code.

1. Y G $\frac{2}{3}$ ◯ $\frac{3}{5}$	**2.** K W $\frac{1}{4}$ ◯ $\frac{2}{7}$	**3.** O S $\frac{5}{6}$ ◯ $\frac{7}{10}$
4. E M $\frac{1}{3}$ ◯ $\frac{2}{9}$	**5.** D T $\frac{5}{16}$ ◯ $\frac{3}{8}$	**6.** I R $\frac{7}{10}$ ◯ $\frac{5}{8}$
7. A L $\frac{5}{8}$ ◯ $\frac{7}{12}$	**8.** H N $\frac{1}{6}$ ◯ $\frac{7}{30}$	**9.** U P $3\frac{6}{7}$ ◯ $3\frac{5}{7}$
10. V S $2\frac{3}{4}$ ◯ $2\frac{5}{6}$	**11.** J P $5\frac{1}{3}$ ◯ $5\frac{3}{8}$	**12.** X Z $1\frac{1}{4}$ ◯ $1\frac{5}{32}$
13. L G $4\frac{7}{9}$ ◯ $4\frac{3}{4}$	**14.** M B $7\frac{5}{12}$ ◯ $7\frac{2}{5}$	**15.** H D $2\frac{1}{2}$ ◯ $2\frac{4}{7}$

16. Which package is heavier:

(R) One that weighs $1\frac{3}{4}$ pounds; or

(F) One that weighs $1\frac{5}{8}$ pounds?

17. Which insect is longer:

(V) One that measures $\frac{3}{8}$ inch; or

(C) One that measures $\frac{2}{5}$ inch?

Why Was the Zoo Worker Fired for Feeding the Monkeys?

Do each exercise and find your answer to the right. Write the letter of the answer in the box containing the number of the exercise. If the answer has a ●, shade in the box instead of writing a letter in it.

I. Write each fraction in lowest terms.

(1) $\frac{9}{12}$ (2) $\frac{8}{18}$

(3) $\frac{25}{40}$ (4) $\frac{12}{36}$

(5) $\frac{30}{100}$ (6) $\frac{16}{20}$

(7) $\frac{16}{32}$ (8) $\frac{15}{48}$

Answers		
(O) $\frac{4}{5}$	(E) $\frac{4}{9}$	
(C) $\frac{2}{5}$	(H) $\frac{5}{8}$	(F) $\frac{3}{8}$
(T) $\frac{3}{4}$	(I) $\frac{3}{10}$	(E) $\frac{5}{16}$
● $\frac{1}{2}$	(P) $\frac{2}{3}$	● $\frac{1}{3}$

II. Write each improper fraction as a mixed number and each mixed number as an improper fraction.

(9) $\frac{23}{5}$ (10) $\frac{18}{8}$

(11) $\frac{20}{12}$ (12) $\frac{45}{18}$

(13) $3\frac{3}{4}$ (14) $8\frac{3}{10}$

(15) $4\frac{7}{15}$ (16) $1\frac{11}{12}$

Answers		
(L) $\frac{20}{12}$	(T) $2\frac{1}{2}$	
● $\frac{83}{10}$	(S) $1\frac{2}{3}$	(D) $\frac{67}{15}$
(A) $\frac{72}{15}$	(O) $\frac{23}{12}$	
(H) $4\frac{3}{5}$	(E) $\frac{15}{4}$	● $2\frac{1}{4}$

III. Write a > or < in each ◯. Then choose the SMALLER fraction and find it among the answers.

(17) $\frac{2}{3}$ ◯ $\frac{7}{9}$ (18) $\frac{2}{5}$ ◯ $\frac{1}{3}$

(19) $\frac{1}{4}$ ◯ $\frac{2}{9}$ (20) $\frac{5}{8}$ ◯ $\frac{7}{12}$

(21) $\frac{2}{5}$ ◯ $\frac{3}{10}$ (22) $\frac{4}{7}$ ◯ $\frac{1}{2}$

(23) $\frac{5}{8}$ ◯ $\frac{11}{16}$ (24) $\frac{3}{10}$ ◯ $\frac{1}{4}$

Answers		
● $\frac{11}{16}$	(M) $\frac{7}{12}$	
(F) $\frac{1}{2}$	(H) $\frac{2}{3}$	(L) $\frac{5}{8}$
● $\frac{2}{9}$	(T) $\frac{1}{4}$	(E) $\frac{1}{3}$
(S) $\frac{7}{9}$	(R) $\frac{2}{5}$	(N) $\frac{3}{10}$

3	13	10	22	8	15	19	1	17	2	20	4	24	6	14	12	9	18	7	23	5	16	21	11

What Did People Say About Mr. and Ms. Snuggle After They Camped for 99 Nights in a Row?

Estimate each sum. Under each exercise, circle the letter of the better choice. Write this letter in the box containing the number of the exercise.

(1) $\frac{1}{2} + \frac{3}{8}$

V greater than 1
E less than 1

(2) $\frac{7}{16} + \frac{1}{2}$

F greater than 1
N less than 1

(3) $\frac{1}{2} + \frac{4}{7}$

T greater than 1
R less than 1

---

(4) $\frac{2}{3} + \frac{7}{12}$

E greater than 1
P less than 1

(5) $\frac{3}{10} + \frac{4}{9}$

L greaterthan 1
Y less than 1

(6) $\frac{5}{8} + \frac{1}{20}$

G greater than 1
W less than 1

---

(7) $\frac{15}{16} + \frac{1}{3}$

S greater than 1
D less than 1

(8) $\frac{2}{5} + \frac{9}{10}$

E greater than 1
K less than 1

(9) $\frac{1}{12} + \frac{6}{11}$

R greater than 1
H less than 1

---

(10) $\frac{3}{5} + \frac{4}{9}$

R about 1
N about *2*

(11) $\frac{7}{8} + \frac{12}{13}$

U about 1
T about 2

(12) $\frac{8}{15} + \frac{3}{7}$

O about 1
Y about 2

---

(13) $\frac{5}{6} + \frac{9}{10} + \frac{1}{4}$

A about 1
E about 2

(14) $\frac{1}{3} + \frac{3}{8} + \frac{2}{11}$

T about 1
S about 2

(15) $\frac{13}{16} + \frac{1}{10} + \frac{3}{25}$

W about 1
P about 2

---

(16) $\frac{1}{4} + \frac{3}{11}$

I about $\frac{1}{2}$
A about 1
O about $1\frac{1}{2}$

(17) $\frac{17}{18} + \frac{2}{5} + \frac{4}{15}$

R about $\frac{1}{2}$
S about 1
N about $1\frac{1}{2}$

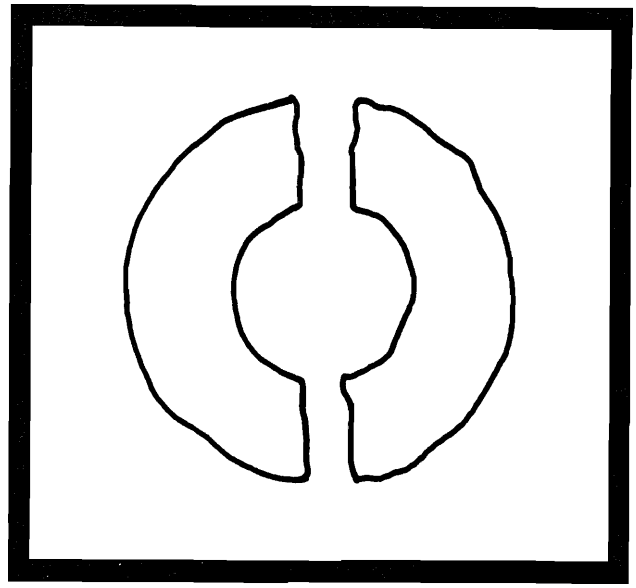
(18) $\frac{3}{7} + \frac{7}{16} + \frac{2}{13}$

S about $\frac{1}{2}$
T about 1
G about $1\frac{1}{2}$

3	9	13	5		15	1	10	8		18	6	12		16	2		14	4	17	11	7

LAW OF THE DONUT

What Famous Rule of Donuts Is Illustrated by This Picture?



DIRECTIONS:

Do each exercise below. Find your answer in the code and write the letter of the exercise above it.

Law of the Donut:

____	____	____	____	____	____	____	____	____	____	____
4	$2\frac{2}{5}$	$1\frac{2}{3}$	$1\frac{2}{9}$	$\frac{3}{10}$	$2\frac{1}{3}$	$\frac{3}{4}$	$1\frac{1}{4}$	$2\frac{3}{7}$	$1\frac{4}{5}$	$1\frac{3}{4}$
____	____	____	____	____	____	____	____	____	____	____
$2\frac{1}{2}$	$\frac{2}{3}$	$1\frac{5}{9}$	$\frac{1}{2}$	$1\frac{5}{8}$	2	$1\frac{7}{10}$	$\frac{3}{5}$	$1\frac{1}{2}$	$1\frac{3}{5}$	$1\frac{1}{6}$

(E) $\frac{7}{8} - \frac{3}{8}$

(O) $\frac{9}{4} - \frac{3}{4}$

(W) $\frac{7}{10} + \frac{17}{10}$

(E) $\frac{9}{7} + \frac{3}{7} + \frac{5}{7}$

(A) $\frac{2}{3} + \frac{5}{3}$

(A) $\frac{1}{9} + \frac{5}{9}$

(L) $\frac{15}{16} - \frac{3}{16}$

(O) $\frac{8}{15} + \frac{4}{15} + \frac{13}{15}$

(S) $\frac{6}{5} + \frac{3}{5}$

(E) $\frac{19}{12} - \frac{5}{12}$

(A) $\frac{13}{6} - \frac{1}{6}$

(M) $\frac{5}{12} + \frac{11}{12} + \frac{14}{12}$

(H) $\frac{9}{20} - \frac{3}{20}$

(K) $\frac{16}{9} - \frac{2}{9}$

(T) $\frac{5}{2} + \frac{3}{2}$

(H) $\frac{67}{100} - \frac{7}{100}$

(V) Rugged Carpet Company installed $\frac{7}{8}$-inch carpet over $\frac{3}{8}$-inch padding. What was the combined thickness?

_____ in.

(L) Bert walked $\frac{9}{10}$ mile to Ernie's house. Then Bert and Ernie walked $\frac{7}{10}$ mile to the park. How far did Bert walk altogether? _____ mi

Why Are Broken Clocks *So* Quiet?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

① $\frac{2}{3} = \frac{\quad}{12}$
$+\ \frac{1}{4} = \frac{\quad}{12}$

② $\frac{2}{5} = \frac{\quad}{15}$
$+\ \frac{1}{3} = \frac{\quad}{15}$

③ $\frac{1}{2} = \frac{\quad}{8}$
$+\ \frac{3}{8} = \frac{\quad}{8}$

④ $\frac{2}{3} = \frac{\quad}{6}$
$+\ \frac{1}{2} = \frac{\quad}{6}$

⑤ $\frac{1}{2} = \frac{\quad}{10}$
$+\ \frac{4}{5} = \frac{\quad}{10}$

⑥ $\frac{3}{4} = \frac{\quad}{8}$
$+\ \frac{5}{8} = \frac{\quad}{8}$

⑦ $\frac{1}{3} = \frac{\quad}{6}$
$+\ \frac{1}{6} = \frac{\quad}{6}$

⑧ $\frac{3}{5} = \frac{\quad}{20}$
$+\ \frac{1}{4} = \frac{\quad}{20}$

⑨ $\frac{5}{6} = \frac{\quad}{18}$
$+\ \frac{4}{9} = \frac{\quad}{18}$

⑩ $\frac{2}{3} = \frac{\quad}{24}$
$+\ \frac{3}{8} = \frac{\quad}{24}$

⑪ $\frac{1}{2} = \frac{\quad}{10}$
$+\ \frac{3}{10} = \frac{\quad}{10}$

⑫ $\frac{3}{4} = \frac{\quad}{12}$
$+\ \frac{5}{6} = \frac{\quad}{12}$

⑬ $\frac{4}{5} = \frac{\quad}{10}$
$+\ \frac{7}{10} = \frac{\quad}{10}$

⑭ $\frac{1}{3} = \frac{\quad}{12}$
$+\ \frac{5}{12} = \frac{\quad}{12}$

⑮ $\frac{7}{8} = \frac{\quad}{24}$
$+\ \frac{5}{6} = \frac{\quad}{24}$

⑯ $\frac{2}{5} = \frac{\quad}{40}$
$+\ \frac{3}{8} = \frac{\quad}{40}$

SO	IT	TH	ET	IM	IF	EY	IX	IT	DO	OR
$1\frac{1}{6}$	$1\frac{17}{24}$	$1\frac{11}{18}$	$1\frac{3}{8}$	$\frac{11}{15}$	$\frac{4}{5}$	$1\frac{1}{12}$	$1\frac{5}{18}$	$\frac{3}{4}$	$1\frac{13}{24}$	$\frac{7}{8}$
BE	NT	IN	TO	AC	AN	LO	CK	UD	TI	ME
$1\frac{1}{2}$	$\frac{13}{20}$	$1\frac{1}{24}$	$\frac{27}{40}$	$\frac{1}{2}$	$\frac{11}{12}$	$\frac{31}{40}$	$1\frac{5}{24}$	$1\frac{7}{12}$	$1\frac{3}{10}$	$\frac{17}{20}$

Why Did Airhead Eat the Dollar He Brought to School?

Do each exercise and find your answer at the bottom of the page. Write the letter of the exercise in the box above the answer.

(S) $\frac{1}{2} + \frac{1}{3}$	(O) $\frac{2}{5} + \frac{1}{2}$	(T) $\frac{1}{2} + \frac{1}{4}$	(I) $\frac{1}{3} + \frac{4}{9}$	(Y) $\frac{1}{5} + \frac{2}{3}$	(U) $\frac{5}{8} + \frac{1}{4}$
(A) $\frac{1}{3} + \frac{5}{6}$	(H) $\frac{1}{2} + \frac{7}{8}$	(I) $\frac{3}{4} + \frac{2}{3}$	(S) $\frac{7}{16} + \frac{9}{16}$	(N) $\frac{1}{6} + \frac{4}{9}$	(W) $\frac{1}{4} + \frac{4}{5}$
(C) $\frac{1}{8} + \frac{2}{3}$	(H) $\frac{1}{2} + \frac{1}{6}$	(E) $\frac{3}{10} + \frac{1}{2}$	(L) $\frac{4}{15} + \frac{1}{3}$	(M) $\frac{3}{4} + \frac{7}{12}$	(N) $\frac{5}{6} + \frac{3}{10}$

$1\frac{5}{12}$	$\frac{3}{4}$	$\frac{13}{18}$	~~$1\frac{1}{20}$~~	$1\frac{1}{6}$	$\frac{5}{6}$	$1\frac{7}{20}$	$\frac{2}{3}$	$\frac{7}{9}$	1	$1\frac{1}{8}$	~~$\frac{3}{5}$~~	$\frac{7}{8}$	$\frac{2}{15}$	~~$\frac{19}{24}$~~	$\frac{3}{8}$	$1\frac{1}{12}$	$1\frac{1}{3}$	$\frac{9}{10}$	$\frac{11}{18}$	$\frac{4}{5}$	$\frac{13}{15}$

What Do You Get When You...

1. Cross a pig with a centipede?

$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{9}$	$1\frac{2}{15}$	$1\frac{4}{15}$	$1\frac{7}{8}$	$\frac{3}{4}$	$1\frac{4}{5}$	$1\frac{1}{10}$	$\frac{7}{12}$	$1\frac{5}{8}$	$\frac{3}{5}$	$1\frac{1}{4}$	$1\frac{1}{12}$

2. Cross a zebra with an ape man?

$\frac{7}{8}$	$\frac{3}{4}$	$\frac{17}{18}$	$\frac{5}{6}$	$\frac{3}{4}$	$1\frac{4}{15}$	$\frac{23}{24}$	$1\frac{1}{12}$	$\frac{7}{8}$	$\frac{17}{18}$	$\frac{11}{20}$	$1\frac{1}{8}$	$\frac{3}{5}$	$1\frac{1}{12}$

3. Cross 3 songs with 12 hot fudge sundaes?

$1\frac{3}{14}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{13}{18}$	$\frac{7}{9}$	$1\frac{7}{24}$	$\frac{3}{4}$	$1\frac{4}{15}$	$\frac{7}{8}$	$1\frac{1}{12}$

Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(D) $\frac{1}{2} + \frac{3}{5}$ (C) $\frac{2}{3} + \frac{1}{9}$ (F) $\frac{5}{7} + \frac{1}{2}$ (E) $\frac{7}{15} + \frac{2}{15}$

(S) $\frac{1}{4} + \frac{5}{6}$ (O) $\frac{4}{5} + \frac{1}{3}$ (I) $\frac{3}{10} + \frac{1}{4}$ (H) $\frac{2}{3} + \frac{5}{8}$

(B) $\frac{3}{5} + \frac{9}{10}$ (R) $\frac{1}{6} + \frac{7}{9}$ (L) $\frac{7}{8} + \frac{3}{4}$ (Z) $\frac{3}{10} + \frac{8}{15}$

(P) $\frac{5}{24} + \frac{11}{24} + \frac{11}{24}$ (G) $\frac{2}{5} + \frac{3}{4} + \frac{1}{10}$ (N) $\frac{1}{2} + \frac{3}{5} + \frac{1}{6}$

(A) Jenny refinished a wooden table. She used $\frac{1}{3}$ can of varnish for a first coat, $\frac{1}{4}$ can for a second coat, and $\frac{1}{6}$ can for a third coat. What fraction of the can did she use in all?

_____

(T) A window is made using 2 panes of glass with an air space between them. Each pane of glass is $\frac{3}{16}$ inch thick, and the separation between panes is $\frac{1}{2}$ inch. How thick is the window?

_____ in.

LAST LINE

A careless zookeeper named Blake
Fell into a tropical lake
Said a fat alligator
A few moments later ...

"

$\frac{17}{40}$	$\frac{11}{18}$	$\frac{1}{6}$	$\frac{17}{28}$	$\frac{7}{18}$	$\frac{3}{5}$	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{3}{8}$	$\frac{11}{28}$	$\frac{1}{2}$	$\frac{37}{100}$	$\frac{11}{12}$	$\frac{13}{36}$	$\frac{1}{15}$	$\frac{5}{12}$

!"

$\frac{19}{36}$	$\frac{11}{12}$	$\frac{1}{15}$	$\frac{11}{24}$	$\frac{11}{24}$	$\frac{23}{40}$	$\frac{7}{12}$	$\frac{1}{6}$	$\frac{11}{18}$	$\frac{1}{4}$	$\frac{11}{18}$	$\frac{1}{6}$	$\frac{5}{8}$	$\frac{19}{36}$	$\frac{11}{12}$	$\frac{11}{18}$	$\frac{2}{5}$	$1\frac{1}{24}$

To decode the last line of this limerick: Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(D) $\frac{7}{8} - \frac{1}{2}$ (I) $\frac{2}{3} - \frac{3}{5}$ (P) $\frac{3}{4} - \frac{1}{6}$ (B) $\frac{9}{10} - \frac{2}{5}$ (L) $\frac{5}{6} - \frac{3}{8}$ (A) $\frac{19}{20} - \frac{11}{20}$

(Y) $\frac{6}{7} - \frac{1}{4}$ (E) $\frac{5}{6} - \frac{2}{9}$ (U) $\frac{67}{100} - \frac{3}{10}$ (F) $\frac{7}{12} - \frac{1}{3}$ (V) $\frac{4}{5} - \frac{3}{8}$ (S) $\frac{7}{9} - \frac{1}{4}$

(G) $\left(\frac{2}{5} + \frac{1}{2}\right) - \frac{3}{10}$ (K) $\frac{5}{8} + \left(\frac{2}{3} - \frac{1}{4}\right)$ (O) $\frac{16}{16} - \left(\frac{3}{4} + \frac{1}{16}\right)$

(R) Razzle Shoes bought a $\frac{1}{2}$-page ad in the Times. Dazzle Shoes bought two ads that were $\frac{1}{6}$ page each. How much more advertising did Razzle Shoes buy?

____ page

(T) Jill made a sauce in cooking class. She used $\frac{1}{2}$ cup of milk, $\frac{2}{3}$ cup of cream, and $\frac{1}{4}$ cup of water. How much less water was used than milk and cream combined?

_____ C

Did You Hear About...

A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	?

$1\frac{5}{24}$	INSTRUMENTS
$\frac{3}{24}$	BRUSH
$\frac{111}{1{,}000}$	NEW
$\frac{19}{30}$	BECAUSE
$\frac{3}{4}$	A
$\frac{17}{20}$	THE
$1\frac{5}{8}$	NEVER
$\frac{13}{20}$	HAVE
$\frac{1}{2}$	MUSICAL
$1\frac{1}{8}$	BOUGHT
$\frac{13}{14}$	EARS
$\frac{1}{4}$	THOUGHT

Do each exercise and find your answer in one of the answer columns. Notice the word next to the answer. Write this word in the box containing the letter of the exercise.

(A) $\begin{array}{r} \frac{1}{4} \\ +\ \frac{3}{5} \\ \hline \end{array}$ (B) $\begin{array}{r} \frac{5}{6} \\ -\ \frac{4}{9} \\ \hline \end{array}$ (C) $\begin{array}{r} \frac{9}{10} \\ +\ \frac{1}{2} \\ \hline \end{array}$ (D) $\begin{array}{r} \frac{2}{3} \\ -\ \frac{5}{12} \\ \hline \end{array}$

(E) $\frac{3}{8} + \frac{9}{16}$ (F) $\frac{7}{10} - \frac{1}{5}$ (G) $\frac{1}{3} + \frac{7}{8}$ (H) $\frac{3}{4} - \frac{1}{10}$

(I) $\frac{1}{2} + \frac{2}{7}$ (J) $\frac{4}{5} - \frac{1}{6}$ (K) $\frac{9}{16} + \frac{15}{16}$ (L) $\frac{7}{10} - \frac{8}{15}$

(M) $\left(\frac{7}{8} - \frac{1}{4}\right) + \frac{1}{2}$ (N) $\frac{19}{20} - \left(\frac{1}{2} - \frac{3}{10}\right)$ (O) $\frac{1}{10} + \frac{1}{100} + \frac{1}{1{,}000}$

(P) A BigBurger has $\frac{1}{4}$ pound of meat. A SuperBurger has $\frac{1}{3}$ pound of meat. How much more meat is used for the SuperBurger? _____ lb

(Q) Kent walked $\frac{3}{4}$ of a mile on Monday. On Tuesday, he walked $\frac{1}{8}$ of a mile less than on Monday. How far did he walk altogether? _____ mi

$1\frac{3}{8}$	TOOTHPASTE
$1\frac{2}{5}$	WHO
$\frac{1}{6}$	MOTHER
$\frac{2}{3}$	BIG
$\frac{11}{14}$	TEETH
$\frac{13}{30}$	WHEN
$\frac{7}{18}$	KID
$1\frac{1}{2}$	HIS
$\frac{15}{16}$	THAT
$\frac{3}{10}$	SHARP
$\frac{1}{12}$	TUBA
$1\frac{1}{24}$	SHOWS

Why Did the Boy Sheep Plunge Off a Cliff While Chasing the Girl Sheep?

For each exercise, write an estimate of the answer. On the number line under the exercise, find a point near your estimate. Write the letter of the exercise on the number line at that point.

(N) $3\frac{9}{10} + 2\frac{13}{16}$

(E) $1\frac{1}{8} + \frac{11}{13}$

(T) $2\frac{4}{9} + 5\frac{1}{2}$

(E) $3\frac{11}{12} + 7\frac{3}{8}$

(D) $5\frac{1}{3} - 1\frac{2}{7}$

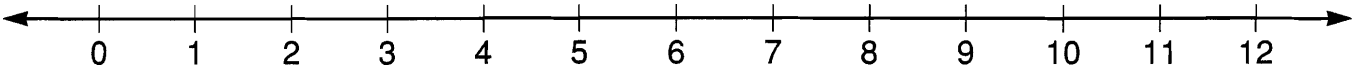
(H) $12\frac{5}{6} - 11\frac{8}{9}$

(I) $1\frac{3}{4} + 3\frac{3}{16} + \frac{1}{9}$

(S) $3\frac{7}{10} + 4\frac{1}{15} + 2\frac{2}{13}$

(E) Betsy needed some fabric to make flags. She bought $4\frac{1}{8}$ yd of red fabric, $4\frac{2}{3}$ yd of white fabric, and $3\frac{1}{4}$ yd of blue fabric. About how much fabric did she buy altogether? _____ yd

(D) Diane went salmon fishing with her father. Diane caught a fish that weighed $16\frac{3}{8}$ lb. Her father caught one that weighed $10\frac{1}{16}$ lb. About how much heavier was Diane's fish? _____ lb



(E) $12\frac{1}{5} + 8\frac{2}{11}$

(T) $3\frac{5}{12} + 10\frac{4}{7}$

(U) $7\frac{1}{6} + 15\frac{7}{9}$

(N) $27\frac{7}{8} - 2\frac{4}{5}$

(E) $20\frac{3}{10} - 4\frac{1}{3}$

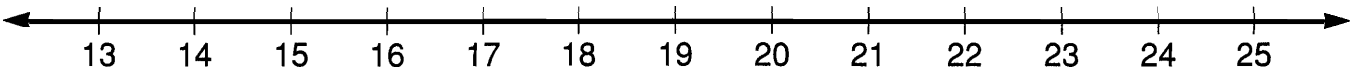
(W) $59\frac{9}{16} - 40\frac{1}{2}$

(H) $9\frac{2}{3} + \frac{3}{20} + 5\frac{1}{4}$

(T) $11\frac{6}{7} + (13\frac{1}{5} - 3\frac{1}{11})$

(R) A plumber had a piece of pipe that was $27\frac{7}{8}$ in. long. He cut off a piece $3\frac{3}{4}$ in. long and used it to repair the sink. About how long was the remaining piece of pipe? _____ in.

(E) Mario is training for the track team. He ran $4\frac{1}{4}$ mi on Monday, $5\frac{9}{10}$ mi on Wednesday, and $7\frac{4}{5}$ mi on Friday. About how far did he run altogether on the three days? _____ mi



Cryptic Quiz

1. What do you call a seafood that drives you home?

$13\frac{1}{3}$	$70\frac{9}{11}$	$12\frac{2}{3}$	$13\frac{1}{3}$	$10\frac{2}{3}$	$10\frac{1}{5}$	$23\frac{1}{8}$	$45\frac{1}{6}$	$8\frac{2}{5}$	$13\frac{1}{3}$	$22\frac{1}{2}$

2. What does a skunk bring to church with him?

$90\frac{3}{10}$	$10\frac{1}{5}$	$84\frac{3}{4}$	$14\frac{2}{3}$	$71\frac{8}{11}$	$46\frac{1}{4}$	$8\frac{1}{3}$	$45\frac{2}{3}$	$10\frac{1}{2}$	14	$46\frac{1}{4}$

3. What does an English setter use to buy food?

$13\frac{1}{3}$	$45\frac{1}{7}$	$23\frac{5}{8}$	$71\frac{8}{11}$	$44\frac{4}{7}$	$10\frac{4}{5}$	$10\frac{1}{2}$	$71\frac{8}{11}$	$7\frac{1}{2}$	$8\frac{1}{3}$	$23\frac{5}{8}$

Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(R) $4\frac{3}{5} + 3\frac{4}{5}$ _____

(U) $1\frac{7}{8} + 5\frac{5}{8}$ _____

(I) $7\frac{3}{10} + 2\frac{9}{10}$ _____

(T) $3\frac{5}{6} + 8\frac{5}{6}$ _____

(E) $9\frac{5}{13} + 4\frac{8}{13}$ _____

(N) $6\frac{5}{9} + 1\frac{7}{9}$ _____

(B) $15\frac{1}{4} + 7\frac{1}{4}$ _____

(H) $38\frac{17}{20} + 51\frac{9}{20}$ _____

(O) $27\frac{5}{11} + 44\frac{3}{11}$ _____

(S) $64\frac{13}{16} + 19\frac{15}{16}$ _____

(X) $8\frac{11}{15} + 1\frac{14}{15}$ _____

(G) $9\frac{5}{7} + 34\frac{6}{7}$ _____

(C) $15\frac{17}{24} + 29\frac{11}{24}$ _____

(D) $12\frac{1}{8} + 3\frac{7}{8} + 7\frac{5}{8}$ _____

(W) $20\frac{5}{12} + 8\frac{5}{12} + 17\frac{5}{12}$ _____

(A) Last week, minor league pitcher Lefty Spitt pitched $7\frac{2}{3}$ innings on Monday and $5\frac{2}{3}$ innings on Friday. How many innings did he pitch last week altogether? _____

(P) It took Smedley $5\frac{3}{4}$ hours to climb to the top of a mountain. It took $3\frac{1}{4}$ hours to climb down. If he spent $1\frac{1}{2}$ hours at the top, how long did the climb take? _____ h

Which Italian Insects Most Often Fall in Love?

Do each exercise and find your answer at the bottom of the page. Cross out the letter above each correct answer. When you finish, the answer to the title question will remain.

(1) $3\frac{1}{2} + 4\frac{3}{10}$ _____

(2) $7\frac{7}{9} + 1\frac{1}{3}$ _____

(3) $4\frac{3}{4} + 9\frac{2}{5}$ _____

(4) $2\frac{7}{8} + 5\frac{1}{2}$ _____

(5) $1\frac{5}{6} + 6\frac{2}{3}$ _____

(6) $10\frac{1}{4} + 7\frac{5}{12}$ _____

(7) $3\frac{7}{9} + 8\frac{5}{6}$ _____

(8) $34\frac{3}{5} + 29\frac{1}{3}$ _____

(9) $71\frac{6}{7} + 6\frac{1}{2}$ _____

(10) $18\frac{2}{3} + 18\frac{7}{12}$ _____

(11) $8\frac{3}{8} + 5\frac{1}{5}$ _____

(12) $50\frac{1}{6} + 11\frac{9}{10}$ _____

(13) Ms. Baker's recipe for rye bread calls for $3\frac{1}{4}$ cups of white flour, $5\frac{2}{3}$ cups of rye flour, and $2\frac{1}{2}$ tablespoons of butter. How much flour is used altogether? _____ c

(14) The legs on a computer table are $23\frac{7}{8}$ inches high. The top is 24 inches wide, 48 inches long, and $1\frac{3}{16}$ inches thick. How high above the floor is the table surface? _____ in.

B	R	E	U	O	G	L	M	P	S	E	A	G	N	H	A	I	T	O	N	S	E
$62\frac{1}{15}$	$13\frac{7}{20}$	$9\frac{1}{9}$	$78\frac{5}{14}$	$8\frac{3}{4}$	$12\frac{11}{18}$	$25\frac{1}{16}$	$25\frac{1}{4}$	$8\frac{3}{8}$	$37\frac{1}{4}$	$12\frac{11}{14}$	$78\frac{11}{14}$	$7\frac{4}{5}$	$62\frac{4}{15}$	$63\frac{14}{15}$	$8\frac{11}{12}$	$8\frac{1}{2}$	$37\frac{5}{8}$	$13\frac{23}{40}$	$14\frac{3}{20}$	$17\frac{1}{4}$	$17\frac{2}{3}$

Knock Knock. Who's There?

1. Amanda. Amanda who? Amanda ...

$8\frac{3}{4}$	$19\frac{2}{5}$	$13\frac{5}{6}$	$8\frac{5}{8}$	$8\frac{3}{16}$	$13\frac{1}{3}$	$14\frac{1}{12}$	$7\frac{13}{16}$	$12\frac{2}{3}$	$6\frac{3}{5}$	$20\frac{3}{10}$	$7\frac{1}{2}$	$18\frac{1}{2}$	$14\frac{3}{4}$	$6\frac{3}{5}$

2. William. William who? William ...

$8\frac{1}{4}$	$14\frac{3}{4}$	$14\frac{3}{4}$	$6\frac{3}{5}$	$19\frac{7}{10}$	$8\frac{1}{4}$	$14\frac{3}{4}$	$85\frac{17}{40}$	$6\frac{3}{5}$	$13\frac{1}{3}$	$12\frac{7}{24}$	$19\frac{2}{5}$	$56\frac{17}{18}$	$85\frac{11}{40}$	$6\frac{3}{5}$

To decode these knock-knock jokes: Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(Y) $3\frac{11}{16} + 4\frac{1}{2}$ = _____

(N) $9\frac{2}{3} + 2\frac{5}{8}$ = _____

(S) $13\frac{4}{5} + 4\frac{7}{10}$ = _____

(U) $5\frac{1}{4} + 8\frac{5}{6}$ = _____

(G) $37\frac{4}{9} + 19\frac{1}{2}$ = _____

(M) $1\frac{11}{12} + 6\frac{1}{3}$ = _____

(X) $4\frac{3}{10} + 9\frac{8}{15}$ = _____

(V) $19\frac{11}{20} + \frac{3}{4}$ = _____

(H) $54\frac{2}{5} + 30\frac{7}{8}$ = _____

(R) $5\frac{1}{4} + 2\frac{9}{16}$ = _____

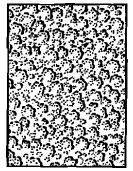
(O) $3\frac{1}{6} + 2\frac{2}{3} + 7\frac{1}{2}$ = _____

(I) $10\frac{1}{5} + 8\frac{1}{2} + \frac{7}{10}$ = _____

(F) $4\frac{3}{8} + 1\frac{1}{6} + 3\frac{5}{24}$ = _____

(E) Juan's model locomotive is $7\frac{5}{8}$ in. long. His coal car is $6\frac{1}{4}$ in. long. When hooked together, there is a $\frac{7}{8}$-inch space between cars. What is the total length when the two cars are hooked together? _____ in.

(T) Every day Ms. Twinkle walks around a park near her house. The park is in the shape of a rectangle 2 mi long and $1\frac{3}{10}$ mi wide. How far does she walk? _____ mi



What Do Mountains Breathe Through?

Do each exercise below. Find your answer in the answer columns and notice the letter next to it. Look for this letter in the string of letters near the bottom of the page and CROSS IT OUT each time it appears. When you finish, write.the remaining letters in the rectangle at the bottom of the page.

(1) $9\frac{3}{4} - 4\frac{1}{2}$ _____

(2) $16\frac{2}{3} - 7\frac{2}{5}$ _____

(3) $8\frac{8}{9} - 5\frac{1}{6}$ _____

(4) $20\frac{13}{16} - 3\frac{1}{4}$ _____

(5) $13\frac{5}{6} - 6\frac{1}{3}$ _____

(6) $51\frac{4}{5} - 8\frac{1}{2}$ _____

(7) $25\frac{7}{8} - 12\frac{5}{12}$ _____

(8) $37\frac{7}{10} - 28\frac{1}{6}$ _____

(9) $67\frac{4}{7} - 17$ _____

(10) $4\frac{1}{5} - 4\frac{3}{100}$ _____

(11) $18\frac{3}{4} - 5\frac{1}{6}$

(12) $6\frac{2}{3} - 3\frac{4}{9}$

(13) $94\frac{11}{15} - 49\frac{2}{5}$

(14) When Arnold Schwarzenegger was named Mr. Universe, he had a chest measurement of $56\frac{7}{8}$ inches and a waist measurement of $32\frac{1}{4}$ inches. How much larger was his chest than his waist? _____ in.

(15) The maximum weight for a basketball is $22\frac{9}{10}$ ounces. For a baseball it is $5\frac{1}{2}$ ounces, and for a tennis ball it is $2\frac{1}{16}$ ounces. How much heavier is a maximum-weight basketball than a maximum-weight baseball? _____ oz

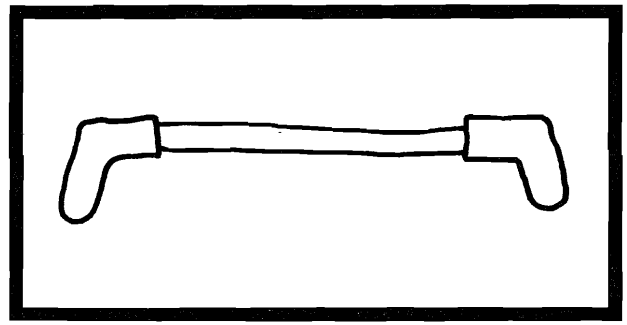
Answers					
	(V) $17\frac{7}{10}$	(Y) $9\frac{8}{15}$	(L) $45\frac{3}{8}$	(U) $13\frac{7}{12}$	(B) $3\frac{13}{18}$
(S) $34\frac{3}{8}$	(G) $5\frac{1}{4}$	(I) $24\frac{5}{8}$	(M) $43\frac{3}{10}$	(N) $3\frac{4}{9}$	(D) $50\frac{4}{7}$
(J) $13\frac{11}{24}$	(F) $3\frac{2}{9}$	(P) $\frac{17}{100}$	(C) $13\frac{1}{3}$	(W) $17\frac{9}{16}$	(O) $\frac{9}{100}$
(T) $17\frac{2}{5}$	(H) $7\frac{1}{2}$	(E) $17\frac{3}{16}$	(Z) $9\frac{4}{15}$	(A) $9\frac{7}{15}$	(R) $45\frac{1}{3}$

P R M V H T O F B I L G D W C U M A Y I N R O T J U S T Z B E R

Answer to puzzle:

What Is the Title of This Picture?

Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.



CODED TITLE:

$2\frac{3}{5}$	$64\frac{4}{7}$	$1\frac{2}{5}$	$1\frac{1}{2}$	$4\frac{1}{2}$	$15\frac{3}{10}$	$6\frac{2}{3}$	$3\frac{2}{7}$	$7\frac{4}{5}$	$63\frac{2}{7}$	$11\frac{1}{2}$	$8\frac{7}{12}$	$2\frac{3}{5}$	$3\frac{2}{3}$	$11\frac{7}{8}$	$15\frac{3}{5}$	$8\frac{7}{12}$	$3\frac{2}{3}$
$7\frac{4}{5}$	$64\frac{4}{7}$	$3\frac{4}{7}$	$1\frac{2}{5}$	$7\frac{1}{5}$	$15\frac{3}{5}$	$1\frac{2}{5}$	$37\frac{5}{6}$	$6\frac{3}{4}$	$37\frac{1}{6}$	$7\frac{4}{5}$	$\frac{3}{5}$	$1\frac{4}{5}$	$2\frac{3}{5}$	$7\frac{4}{5}$	$4\frac{1}{3}$	$1\frac{1}{2}$	$2\frac{3}{5}$

(E) $7\frac{1}{4} - 2\frac{3}{4}$ = _____

(T) $10\frac{1}{3} - 6\frac{2}{3}$ = _____

(R) $8\frac{5}{8} - 1\frac{7}{8}$ = _____

(A) $5\frac{1}{5} - 3\frac{4}{5}$ = _____

(C) $12\frac{1}{6} - 7\frac{5}{6}$ = _____

(H) $9 - 5\frac{5}{7}$ = _____

(U) $23 - 14\frac{5}{12}$ = _____

(F) $6\frac{3}{10} - 5\frac{7}{10}$ = _____

(W) $15\frac{2}{9} - 8\frac{5}{9}$ = _____

(J) $40\frac{3}{16} - 28\frac{11}{16}$ = _____

(N) $79\frac{2}{7} - 14\frac{5}{7}$ = _____

(I) $94\frac{5}{12} - 56\frac{7}{12}$ = _____

(O) $8\frac{2}{5} - \frac{3}{5}$ = _____

(P) $16\frac{9}{20} - \frac{17}{20}$ = _____

(K) Anne is building a fence using nails that are $2\frac{1}{4}$ in. long. She drove one of the nails through a board $\frac{3}{4}$ in. thick into a post 3 in. square. How far did the nail go into the post? _____ in.

(S) Jose decided to walk the $9\frac{3}{10}$ mi from his house to the beach. In the first hour, he walked $3\frac{4}{5}$ mi. In the second hour, he walked $2\frac{9}{10}$ mi. How much farther did he have to go? _____ mi

Where Do Trees Go When One Tree Has a Birthday?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

① $8\frac{1}{4} - 5\frac{1}{2}$ ____

② $9\frac{1}{3} - 4\frac{5}{6}$ ____

③ $6\frac{3}{10} - 2\frac{1}{2}$ ____

④ $7\frac{1}{5} - 3\frac{3}{4}$ ____

⑤ $12\frac{4}{9} - 1\frac{2}{3}$ ____

⑥ $30\frac{1}{4} - 8\frac{7}{12}$ ____

⑦ $18\frac{1}{3} - 3\frac{4}{5}$ ____

⑧ $9\frac{2}{9} - 8\frac{1}{2}$ ____

⑨ $5\frac{1}{4} - \frac{7}{10}$ ____

⑩ $27\frac{2}{3} - 6\frac{7}{8}$ ____

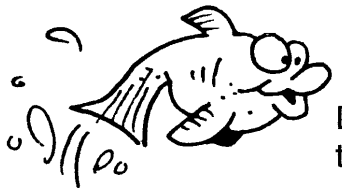
⑪ $44\frac{11}{15} - 38\frac{2}{5}$ ____

⑫ $15\frac{1}{6} - \frac{3}{10}$ ____

⑬ Les Anderson set a record when he caught a salmon that weighed $97\frac{1}{4}$ lb. Robert Wilson caught a salmon that weighed $74\frac{9}{16}$ lb. How much less than the record was this? ____ lb

⑭ A cabinet has shelves that are $11\frac{1}{2}$ in. apart. On one shelf, Mike stacked a VCR that is $5\frac{1}{4}$ in. high on top of an amplifier that is $3\frac{3}{8}$ in. high. How much space is left above the VCR? ____ in.

TH $3\frac{9}{20}$	IN $22\frac{11}{16}$	TO $20\frac{11}{24}$	ES $2\frac{3}{4}$	TR $20\frac{19}{24}$	IT $22\frac{3}{16}$	EE $\frac{13}{18}$	SL $10\frac{5}{9}$	OW $2\frac{7}{8}$	DR $4\frac{1}{2}$	UM $2\frac{1}{4}$
TO $14\frac{13}{15}$	BE $6\frac{3}{5}$	AM $14\frac{8}{15}$	UP $3\frac{4}{5}$	RP $\frac{7}{18}$	ST $10\frac{7}{9}$	AR $14\frac{4}{15}$	KS $6\frac{1}{3}$	CA $21\frac{2}{3}$	TY $4\frac{7}{20}$	KE $4\frac{11}{20}$



Why Does a Mermaid Wear Goggles?

Do each exercise mentally. Write your answer and then find it in the set of boxes under the exercise. Write the letter of the exercise in the box containing the answer.

(S) $\frac{1}{4} + \frac{3}{4}$

(T) $2\frac{1}{4} + 5\frac{3}{4}$

(A) $4\frac{5}{8} + \frac{3}{8}$

(H) $3\frac{2}{5} + 7\frac{3}{5}$

(O) $8\frac{7}{12} + 5\frac{5}{12}$

(T) $6 + 2\frac{2}{3}$

(S) $10 + 3\frac{5}{6}$

(H) $4\frac{7}{16} + 9$

(N) $5\frac{2}{3} + 5\frac{1}{3} + 3\frac{1}{2}$

(E) $2\frac{3}{10} + 6\frac{1}{4} + 7\frac{7}{10}$

(I) $9\frac{1}{6} + 1\frac{5}{8} + 4\frac{5}{6}$

(A) $\frac{3}{4} + 3\frac{11}{15} + 8\frac{4}{15}$

(E) $\frac{3}{8} + \frac{3}{8} + \frac{3}{8}$

(L) $\frac{3}{5} + \frac{3}{5} + 4$

(C) $\frac{4}{9} + \frac{7}{9} + 7$

(V) $\frac{1}{16} + \frac{3}{16} + \frac{5}{16} + \frac{7}{16}$

$13\frac{5}{6}$	14	10	8	$13\frac{7}{16}$	5	$8\frac{2}{3}$	$13\frac{9}{16}$	1	11	$1\frac{1}{8}$	$5\frac{3}{5}$	$8\frac{2}{9}$	$12\frac{3}{4}$	$14\frac{1}{2}$	$8\frac{5}{9}$	$5\frac{1}{5}$	$15\frac{5}{8}$	1	$16\frac{1}{4}$

(E) $7 - \frac{1}{2}$

(T) $2 - \frac{1}{3}$

(C) $10 - \frac{1}{8}$

(I) $13 - \frac{1}{5}$

(E) $6 - \frac{2}{3}$

(H) $5 - \frac{3}{4}$

(N) $8 - \frac{5}{8}$

(O) $1 - \frac{9}{16}$

(A) $9 - \frac{2}{5}$

(E) $9 - \frac{5}{6}$

(A) $7 - 6\frac{1}{2}$

(D) $7 - 6\frac{4}{9}$

(N) $4 - \frac{7}{10}$

(A) $4 - \frac{5}{16}$

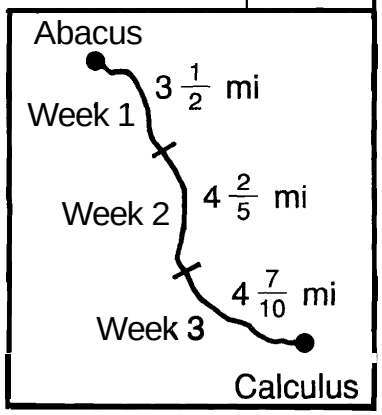
(N) $4\frac{1}{3} - \frac{2}{3}$

(S) $4\frac{3}{8} - \frac{7}{8}$

$12\frac{4}{5}$	$7\frac{3}{8}$	$12\frac{2}{5}$	$1\frac{2}{3}$	$4\frac{1}{4}$	$6\frac{1}{2}$	$7\frac{7}{8}$	$\frac{7}{16}$	$9\frac{7}{8}$	$5\frac{1}{3}$	$\frac{1}{2}$	$3\frac{3}{10}$	$\frac{7}{9}$	$8\frac{3}{5}$	$3\frac{2}{3}$	$\frac{5}{9}$	$3\frac{7}{16}$	$3\frac{1}{2}$	$8\frac{1}{6}$	$3\frac{11}{16}$

How Do You Describe a Guy Who Has Jokes Written All Over One Leg?

Do each exercise and find your answer at the bottom of the page. Cross out the letter above each correct answer. When you finish, the answer to the title question will remain.



1. It took 3 weeks to build a road between the towns of Abacus and Calculus, as shown in the diagram.

A. How many more miles of road were built during week 3 than during week 1? _____ mi

B. What is the total length of the new road? _____ mi

2. Meg has $5\frac{3}{4}$ yd of fabric. She needs $1\frac{1}{8}$ yd to make a vest and $2\frac{1}{2}$ yd to make a skirt. How much fabric will be left for a jacket? _____ yd

3. The road to Rustic Canyon Camp is $9\frac{1}{5}$ mi long. The distance by boat is $3\frac{3}{4}$ mi. How much less is the distance by boat? _____ mi

4. Station KROQ played three songs in a row. The first song lasted $3\frac{1}{6}$ min, the second $2\frac{3}{4}$ min, and the third $3\frac{2}{3}$ min. How long did it take to play all three songs? _____ min

5. Lisa's desk is $46\frac{1}{2}$ in. wide. Her bookcase is 30 in. wide. If she puts both of them against a wall that is 98 in. wide, how much space will be left for a file cabinet? _____ in.

6. Stock prices for three companies are given in the table. Prices are given in eighths of a dollar.

Stock	Open	High	Low	Close
Tech Computer	$33\frac{1}{2}$	$39\frac{3}{4}$	$32\frac{1}{8}$	35
ROM Bus Line	$67\frac{7}{8}$	$71\frac{5}{8}$	63	$63\frac{1}{2}$
Air Chance	$15\frac{1}{4}$	$18\frac{1}{2}$	$14\frac{3}{8}$	18

A. What was the difference between the high and low prices of Tech Computer? $_____

B. What was the difference between the opening and closing prices of ROM Bus Line? $_____

C. Max Mix bought one share of each stock at its opening price. How much did he pay? $_____

D. Hugh Mann bought 100 shares of Air Chance at the opening price and sold them at the closing price. How much profit did he make on each share? $_____

I	F	A	T	U	P	E	N	K	I	N	O	W	E	D	E	R
$4\frac{3}{8}$	$2\frac{5}{8}$	$5\frac{9}{20}$	$1\frac{1}{5}$	$18\frac{1}{2}$	$2\frac{3}{4}$	$7\frac{5}{8}$	$4\frac{1}{8}$	$117\frac{1}{8}$	$9\frac{7}{12}$	$7\frac{1}{4}$	$116\frac{5}{8}$	$2\frac{1}{8}$	$5\frac{13}{20}$	$21\frac{1}{2}$	$9\frac{11}{12}$	$12\frac{3}{5}$

MIDDLE SCHOOL MATH WITH PIZZAZZ! BOOK C

Why Does Cirilla Say That She Used to be Twins?

Do the exercises mentally. Write the letter of each exercise in the box under its answer.

I

(R) $\frac{1}{2} \times 26$

(S) $\frac{1}{2} \times 40$

(M) $\frac{1}{3} \times 21$

(I) $\frac{1}{3} \times 75$

(H) $\frac{1}{4} \times 12$

(T) $\frac{1}{4} \times 36$

(C) $\frac{3}{4} \times 36$

(E) $\frac{3}{4} \times 80$

(H) $33 \times \frac{1}{3}$

(A) $33 \times \frac{2}{3}$

II

(O) $\frac{1}{5} \times 40$

(A) $\frac{2}{5} \times 40$

(P) $\frac{3}{5} \times 40$

(T) $\frac{4}{5} \times 40$

(E) $32 \times \frac{1}{8}$

(H) $40 \times \frac{3}{8}$

(R) $72 \times \frac{5}{8}$

(E) $\frac{2}{9} \times 54$

(R) $50 \times \frac{1}{10}$

(U) $120 \times \frac{3}{10}$

III

(S) $\frac{3}{4}$ of 32

(H) $\frac{5}{7}$ of 21

(E) $\frac{4}{9}$ of 63

(O) $\frac{1}{12}$ of 36

(A) $\frac{7}{10}$ of 50

(E) $\frac{9}{10}$ of 10

(S) $\frac{6}{11}$ of 66

(W) $\frac{3}{5}$ of 55

(H) $\frac{2}{15}$ of 60

(O) $\frac{1}{6}$ of 540

1 yd = 36 in.	1 qt = 32 oz
1 lb = 16 oz	1 hr = 60 min

IV

(R) $\frac{1}{3}$ of a yd = _____ in.

(F) $\frac{1}{4}$ of a lb = _____ oz

(E) $\frac{1}{2}$ of a qt = _____ oz

(T) $\frac{2}{3}$ of an hr = _____ min

(H) $\frac{3}{4}$ of a yd = _____ in.

(W) $\frac{7}{8}$ of a lb = _____ oz

(N) $\frac{5}{8}$ of a qt = _____ oz

(W) $\frac{5}{6}$ of an hr = _____ min

Answers for Columns I and II:

3	4	5	6	7	8	9	11	12	13	14	15	16	20	21	22	23	24	25	27	32	36	45	60

Answers for Columns III and IV:

2	3	4	7	8	9	12	13	14	15	16	20	23	24	27	28	31	33	35	36	37	40	50	90

Why Did the Math Book Go On a Diet?

Estimate each product using a compatible number. Find your answer in the Code Key and notice the letter next to it. Write this letter in the box containing the number of the exercise.

(1) $\frac{1}{3} \times 11$

(2) $\frac{1}{3}$ of 25

(3) $\frac{1}{5}$ of 36

(4) $\frac{1}{5} \times 48$

(5) $\frac{1}{7}$ of 15

(6) $\frac{1}{4} \times 19.5$

(7) $\frac{1}{6}$ of 52

(8) $\frac{1}{10}$ of 303

(9) $\frac{1}{9} \times 25.8$

(10) $\frac{1}{8}$ of 66.7

(11) $\frac{1}{2}$ of 13.9

(12) $\frac{1}{12}$ of 62.5

(13) $\frac{1}{5}$ of 99.2

(14) $\frac{1}{9} \times 16.5$

(15) $\frac{1}{7}$ of 30

(16) $\frac{1}{8}$ of 82.1

(17) $\frac{1}{20} \times 23.5$

(18) $\frac{1}{11} \times 64$

(19) $\frac{1}{3}$ of 60.3

(20) $\frac{1}{10}$ of 77.5

CODE KEY	
about 1	H
about 2	I
about 3	U
about 4	O
about 5	E
about 6	N
about 7	A
about 8	T
about 9	S
about 10	R
about 12	P
about 20	C
about 30	D
about 40	L
about 50	F

(21) Mortimer has read about $\frac{1}{6}$ of a 298-page novel. Estimate the number of pages he has read. _____

(22) The clothes at Trendy Togs are on sale at $\frac{1}{4}$ off the regular price. About how much would you save on a suit with a regular price of $119.50? $ _____

14	2	17	11	8	21	16	3	13	20	5	1	18	7	10	15	4	12	22	9	19	6

Did All the Animals Go onto Noah's Ark in Pairs?

Estimate each product using a compatible number. Under each exercise, circle the letter of the better choice. Write this letter in the box containing the number of the exercise.

(1) $\frac{1}{3} \times 17$

V about 4

E about 6

(2) $\frac{1}{4} \times 29$

O about 7

C about 6

(3) $\frac{1}{5} \times 98$

K about 22

A about 20

(4) $\frac{2}{3} \times 28$

T about 19

R about 16

---

(5) $\frac{3}{4}$ of 45

I about 34

B about 30

(6) $\frac{1}{7}$ of 706

F about 90

S about 100

(7) $\frac{3}{5}$ of 19

R about 14

E about 11

(8) $\frac{1}{8}$ of 159

G about 30

P about 20

---

(9) $\frac{7}{10} \times 77$

M about 54

A about 60

(10) $\frac{2}{3} \times 154$

T about 100

H about 90

(11) $\frac{1}{4}$ of 270

Y about 80

H about 70

(12) $\frac{1}{12}$ of 365

S about 30

P about 25

---

(13) $\frac{1}{6}$ of \$31.50

E about \$5.00

D about \$4.00

(14) $\frac{2}{9}$ of \$87.75

N about \$20.00

F about \$30.00

(15) $\frac{3}{10}$ of \$297.95

M about \$80.00

W about \$90.00

---

(16) $\frac{1}{4}$ of 25

P greater than 6

R less than 6

(17) $\frac{5}{8} \times 47$

S greater than 30

N less than 30

(18) $\frac{2}{5}$ of \$148.25

B more than \$60.00

W less than \$60.00

---

(19) About $\frac{1}{3}$ of the 238 students at Adams Junior High walk to school. Estimate the number who walk.

L about 80 ***G*** about 90

(20) About $\frac{9}{10}$ of the 387 students at Lincoln School like math. Estimate the number who like math.

D about 300 R about 360

4	11	7		18	2	20	9	12		15	1	17	10		5	14		3	16	8	19	13	6

What Did the Cowboy Artist Like to Do?

Write each answer, then mark it in the answer columns. For each set of exercises, there is one extra answer. Write the letter of this answer in the corresponding box at the right.

4	9	6	2	7	1	5	10	3	8

1

$\frac{1}{2} \times \frac{1}{4}$

$\frac{2}{5} \times \frac{1}{3}$

$\frac{3}{4} \times \frac{5}{7}$

Answers

(L) $\frac{2}{15}$ (I) $\frac{9}{28}$

(B) $\frac{1}{8}$ (P) $\frac{15}{28}$

2

$\frac{3}{10} \times \frac{1}{2}$

$\frac{5}{8} \times \frac{1}{6}$

$\frac{2}{3} \times \frac{3}{4}$

(E) $\frac{1}{2}$ (A) $\frac{3}{20}$

(K) $\frac{5}{48}$ (W) $\frac{3}{8}$

3

$\frac{5}{6} \times \frac{4}{5}$

$\frac{3}{8} \times \frac{1}{3}$

$\frac{1}{10} \times \frac{1}{8}$

(V) $\frac{2}{3}$ (T) $\frac{9}{16}$

(U) $\frac{5}{8}$ (M) $\frac{1}{8}$

4

$\frac{1}{2}$ of $\frac{1}{2}$

$\frac{3}{5}$ of $\frac{1}{4}$

$\frac{2}{3}$ of $\frac{5}{12}$

(D) $\frac{1}{6}$ (L) $\frac{5}{18}$

(F) $\frac{3}{20}$ (H) $\frac{1}{4}$

5

Jay found $\frac{1}{3}$ of a sheet cake in the kitchen. He ate $\frac{1}{2}$ of it. What fraction of the whole cake did he eat? _____

(C) $\frac{1}{10}$

The distance around a track is $\frac{1}{4}$ mile. Diana ran $\frac{2}{5}$ of the distance. How far did she run? _____ mi

(S) $\frac{1}{8}$ (N) $\frac{1}{6}$

6

$\frac{1}{3} \times 5$

$\frac{5}{8} \times 8$

$\frac{1}{4} \times 6$

Answers

(T) $1\frac{1}{2}$ (I) $1\frac{2}{3}$

(A) $1\frac{1}{8}$ (S) $1\frac{3}{5}$

7

$\frac{2}{5} \times 11$

$\frac{7}{8}$ of 2

$4 \times \frac{5}{7}$

(N) $2\frac{6}{7}$ (H) $2\frac{1}{2}$

(F) $4\frac{2}{5}$ (M) $1\frac{3}{4}$

8

$\frac{3}{100}$ of 5

$\frac{5}{6}$ of $\frac{12}{10}$

$\frac{3}{8} \times \frac{8}{3}$

(S) $\frac{3}{20}$ (P) $\frac{7}{12}$

(L) 1 (N) $\frac{1}{2}$

9

$\frac{1}{2} \times \frac{1}{3} \times \frac{1}{4}$

$\frac{2}{3} \times \frac{1}{4} \times \frac{3}{3}$

$\frac{2}{3} \times \frac{1}{2} \times \frac{6}{9}$

(W) $\frac{1}{9}$ (E) $\frac{1}{6}$

(R) $\frac{5}{12}$ (I) $\frac{1}{24}$

10

The width of a photograph is $\frac{7}{10}$ of the length. The length is 5 inches. What is the width? _____ in.

(G) $3\frac{1}{4}$

A recipe for 4 dozen cookies calls for $\frac{3}{4}$ cup of sugar. How much sugar is needed to make 2 dozen cookies? _____ c

(T) $3\frac{1}{2}$ (K) $\frac{3}{8}$

Moving Words

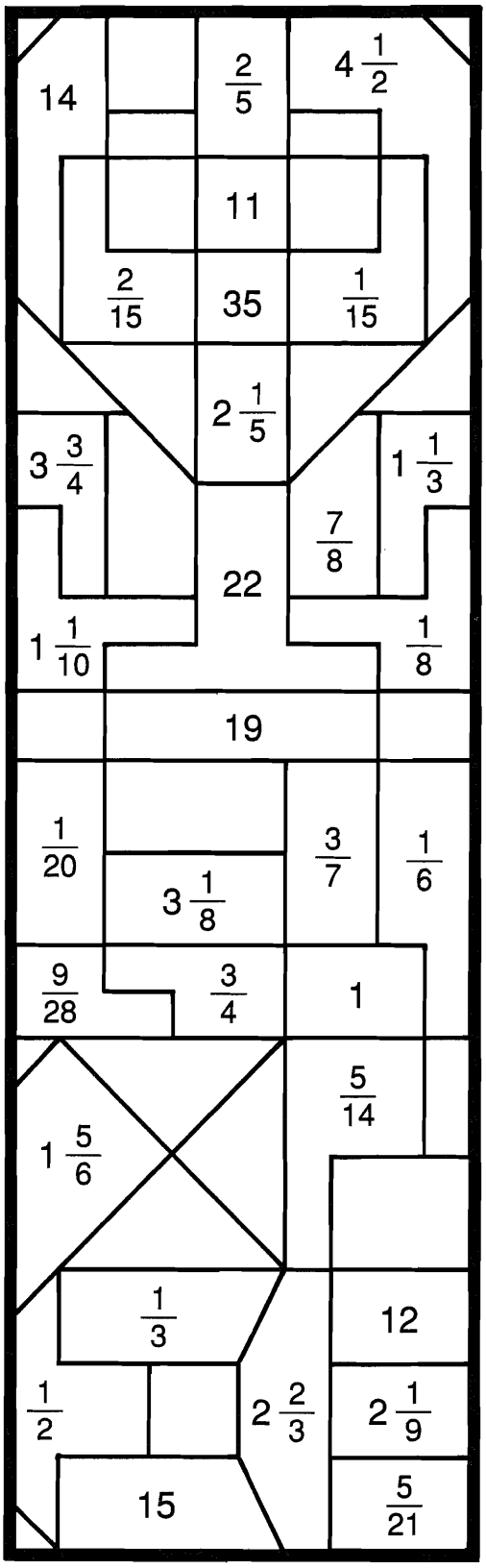
Do each exercise in the top block and find your answer in the bottom block. Transfer the word from the top box to the corresponding bottom box. Keep working and you will get a timely question.

(1) $\frac{2}{5} \times \frac{1}{4}$ KNOW	(2) $\frac{3}{7} \times \frac{1}{6}$ STREET	(3) $\frac{7}{8} \times \frac{2}{3}$ SOMETIMES	(4) $\frac{3}{5} \times \frac{15}{16}$ THE	(5) $\frac{4}{15} \times \frac{5}{8}$ THIRD	(6) $\frac{3}{10} \times \frac{5}{6}$ DO	(7) $\frac{2}{3} \times \frac{9}{20}$ IS
(8) $\frac{4}{5} \times \frac{1}{6}$ THAT	(9) $\frac{8}{9} \times \frac{1}{12}$ STREET	(10) $\frac{3}{8} \times \frac{8}{15}$ AND	(11) $\frac{5}{12} \times \frac{9}{10}$ WHY	(12) $\frac{2}{3} \times \frac{2}{9}$ RUNS	(13) $\frac{4}{7} \times \frac{7}{10}$ CALLED	(14) $\frac{9}{50} \times \frac{5}{24}$ SIXTY
(15) $\frac{10}{3} \times \frac{2}{5}$ STREET	(16) $\frac{12}{5} \times \frac{5}{8}$ YOU	(17) $\frac{20}{7} \times \frac{14}{15}$ SIXTY	(18) $\frac{10}{9} \times \frac{27}{4}$ BETWEEN	(19) $\frac{20}{33} \times \frac{11}{30}$ STREET	(20) $\frac{2}{15} \times \frac{100}{3}$ FIRST	(21) $\frac{8}{9} \times \frac{15}{6}$ MINUTE

$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{1}{10}$	$\frac{3}{8}$	$\frac{9}{16}$	$1\frac{1}{3}$	$\frac{2}{15}$
$\frac{4}{27}$	$7\frac{1}{2}$	$\frac{3}{80}$	$4\frac{4}{9}$	$\frac{1}{14}$	$\frac{1}{5}$	$2\frac{2}{3}$
$\frac{1}{6}$	$\frac{2}{9}$	$\frac{3}{10}$	$\frac{7}{12}$	$\frac{2}{5}$	$2\frac{2}{9}$	$\frac{2}{27}$?

What Has a Bottom at the Top?

Do the exercises below and find your answers in the rectangle. Shade in each area containing a correct answer. You will get to the bottom of this mystery!



① $\frac{2}{3} \times \frac{1}{10}$ ② $\frac{5}{9} \times \frac{3}{5}$ ③ $\frac{8}{3} \times \frac{1}{2}$

④ $\frac{1}{6} \times \frac{10}{7}$ ⑤ $\frac{9}{5} \times \frac{5}{12}$ ⑥ $\frac{6}{5} \times \frac{15}{4}$

⑦ $\frac{9}{10} \times \frac{25}{6}$ ⑧ $\frac{5}{8}$ of 24 ⑨ $\frac{7}{4} \times 20$

⑩ $\frac{12}{35} \times \frac{15}{16}$ ⑪ $\frac{8}{7} \times \frac{21}{2}$ ⑫ $\frac{3}{10} \times \frac{5}{12}$

⑬ $\frac{1}{2} \times \frac{4}{9} \times \frac{3}{5}$ ⑭ $\frac{6}{7} \times \frac{5}{6} \times \frac{7}{10}$

⑮ $\frac{8}{15} \times \frac{9}{4} \times \frac{11}{12}$ ⑯ $\frac{7}{6} \times \frac{2}{5} \times 30$

⑰ $\frac{4}{9} \times 16 \times \frac{3}{8}$ ⑱ $\frac{3}{4} \times \frac{4}{3} \times \frac{5}{5}$

⑲ The King's ship sank with 8 gold bars aboard. The King paid Captain Nemo $\frac{4}{5}$ of one bar for finding the gold. The Captain gave $\frac{1}{2}$ of his gold to charity. What fraction of a bar went to charity?

_____

⑳ There are 40 students at Bali High who play stringed instruments. Of these, $\frac{1}{4}$ play viola, $\frac{1}{5}$ play cello, and the rest play violin. How many students play violin? _____

㉑ Yikes McTugg bought $\frac{1}{2}$ pound of potato salad. He ate $\frac{2}{3}$ of it for lunch. How much potato salad was left for an afternoon snack? _____ lb

What Is the Friendliest Kind of Airplane?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

1. Bill made 5 gallons of fruit punch. If $\frac{1}{4}$ of the punch was cranberry juice, how much cranberry juice did he use? _____ gal

2. A high-speed computer printer prints a page in $\frac{1}{6}$ second. Using this printer, how long would it take to print 30 pages? _____ s

3. A recipe for pancakes calls for 1 cup of pancake mix and $\frac{3}{4}$ cup of milk. How much milk is needed to make $\frac{1}{2}$ the recipe? _____ c

4. The students at Mix Middle School painted a mural 25 feet long. The height was $\frac{3}{10}$ of the length. How high was the mural? _____ ft

5. The Avocados own a $\frac{1}{4}$-acre orchard. Two fifths of the orchard is planted in orange trees. What fraction of an acre is planted in orange trees? _____

6. A bottle of root beer contains $\frac{4}{5}$ of a liter. How much root beer is in 3 bottles? _____ L

7. In Mr. Prime's class, $\frac{9}{10}$ of the students had done their homework. Of these, $\frac{2}{3}$ had all correct answers. What fraction of the whole class had all correct answers? _____

8. 14-karat gold is $\frac{7}{12}$ pure gold and $\frac{5}{12}$ other metals. How much pure gold is in 4 ounces of 14-karat gold? _____ oz

9. A lemon pie was cut into 6 equal pieces. Being on a diet, Matilda ate only half a piece. What fraction of the whole pie did she eat? _____

10. Rachel has a collection of 40 stuffed animals. Of the animals, $\frac{3}{8}$ are bears and $\frac{1}{5}$ are dogs. The rest are other animals. How many other animals does she have? _____

IT $\frac{1}{10}$	AH $2\frac{1}{2}$	OT 17	EL $\frac{1}{9}$	AD $7\frac{1}{2}$	IN $1\frac{1}{4}$	LO 14	VE $\frac{1}{12}$
FL $\frac{3}{5}$	CO $\frac{1}{2}$	ME 5	YU $2\frac{1}{3}$	PT 10	OP $\frac{3}{8}$	OV $2\frac{2}{5}$	ER $8\frac{1}{5}$

DAFFYNITION DECODER

1. Thousand dollar bill: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

13	100	57	75	15	880	54	152	100	55

140	58	13	140	55	295	96	18	140	61	300	44	235	730

2. Daffodil: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

100	310	26	880	880	54	39	825	13	96	235	730	42	140

TO DECODE THESE TWO DAFFYNITIONS:

Fill in each blank and then add to complete each exercise. Find the circled answer in the code. Each time the answer appears, write the letter of the exercise above it.

(V) $1\frac{1}{2} \times 12 = \underline{12} + \underline{6} =$ ◯

(N) $5\frac{1}{2} \times 10 = \underline{50} + \underline{\quad} =$ ◯

(G) $4\frac{1}{3} \times 6 = \underline{\quad} + \underline{\quad} =$ ◯

(A) $3\frac{1}{3} \times 30 = \underline{\quad} + \underline{\quad} =$ ◯

(U) $2\frac{1}{5} \times 20 = \underline{\quad} + \underline{\quad} =$ ◯

(X) $7\frac{1}{4} \times 8 = \underline{\quad} + \underline{\quad} =$ ◯

(F) $1\frac{1}{8} \times 48 = \underline{\quad} + \underline{\quad} =$ ◯

(L) $4\frac{2}{3} \times 9 = \underline{\quad} + \underline{\quad} =$ ◯

(T) $3\frac{3}{4} \times 20 = \underline{\quad} + \underline{\quad} =$ ◯

(I) $6\frac{2}{5} \times 15 = \underline{\quad} + \underline{\quad} =$ ◯

(Y) $5\frac{4}{7} \times 7 = \underline{\quad} + \underline{\quad} =$ ◯

(R) $2\frac{3}{8} \times 24 = \underline{\quad} + \underline{\quad} =$ ◯

(C) $4\frac{7}{10} \times 50 = \underline{\quad} + \underline{\quad} =$ ◯

(S) $9\frac{5}{6} \times 30 = \underline{\quad} + \underline{\quad} =$ ◯

(O) $2\frac{1}{5} \times 400 = \underline{\quad} + \underline{\quad} =$ ◯

(D) $1\frac{2}{3} \times 180 = \underline{\quad} + \underline{\quad} =$ ◯

(E) There are 60 minutes in one hour. How many minutes are there in $2\frac{1}{3}$ hours?

(K) There are 100 centimeters in one meter. How many centimeters are there in $7\frac{3}{10}$ meters?

(P) Amos baked $2\frac{3}{4}$ dozen chocolate chip cookies. Then he ate $1\frac{2}{3}$ dozen. How many cookies were left?

Why Did Mr. Wurksemhard Nickname One of His Students "Mississippi"?

Under each exercise, circle the letter of the better choice. Write this letter in the box containing the number of the exercise.

A. Choose the better estimate.

(1) $3\frac{1}{5} \times 7\frac{7}{8}$

V about 18
E about 25

(2) $8\frac{2}{3} \times 5\frac{1}{7}$

A about 45
L about 38

(3) $2\frac{1}{4} \times 11\frac{7}{9}$

R about 36
U about 26

(4) $6\frac{1}{3} \times 7$

K about 37
H about 44

---

(5) $9\frac{2}{5} \times 2\frac{1}{6}$

T about 20
G about 15

(6) $1\frac{1}{8} \times 20\frac{3}{10}$

R about 35
O about 23

(7) $6\frac{3}{16} \times 4\frac{2}{7}$

I about 26
N about 22

(8) $3\frac{4}{5} \times 5\frac{8}{9}$

S about 22
P about 27

---

(9) $2\frac{7}{10} \times 14\frac{5}{6}$

Y about 55
E about 40

(10) $4\frac{3}{8} \times 4\frac{5}{8}$

O about 28
A about 20

(11) $9\frac{5}{7} \times 7\frac{1}{4}$

R about 63
W about 70

(12) $1\frac{1}{2} \times 19\frac{11}{12}$

T about 30
N about 50

B. Estimate. Choose > or < for each □.

(13) $3\frac{1}{3} \times 3\frac{1}{5}$ □ 9

S > **D** <

(14) $5\frac{1}{8} \times 12\frac{2}{9}$ □ 60

H > **I** <

(15) $8\frac{9}{10} \times 4\frac{3}{4}$ □ 45

O > **E** <

---

(16) $6\frac{6}{7} \times 10\frac{7}{12}$ □ 77

R > **W** <

(17) $2\frac{1}{5} \times 25\frac{1}{2}$ □ 50

H > **S** <

(18) $7\frac{7}{8} \times 50$ □ 400

N > **T** <

C. Solve.

(19) Amir is $8\frac{4}{5}$ times as tall as he appears in a photograph. He is $7\frac{1}{8}$ in. tall in the photograph. Estimate Amir's actual height.

B about 56 in. M about 63 in.

(20) On a map, 1 inch represents $12\frac{1}{2}$ miles. If two towns are $3\frac{7}{8}$ in. apart on the map, estimate the actual distance between them.

L about 60 mi D about 50 mi

8	4	15		11	2	13		16	7	20	1		10	18		5	14	9		19	6	3	12	17

Why Doesn't Orgo Eat Cabbage, Corn, Chicken, Clams, Cake, or Celery?

Write the letter of each correct answer in the box containing the number of the exercise. If the answer has a ●, shade in the box instead of writing a letter.

I. Write each mixed number as an improper fraction.

(1) $2\frac{3}{5}$ (2) $5\frac{1}{8}$ (3) $3\frac{5}{7}$ (4) $8\frac{3}{4}$ (5) $4\frac{7}{10}$

(6) $3\frac{5}{12}$ (7) $7\frac{1}{6}$ (8) $1\frac{17}{20}$ (9) $6\frac{7}{8}$ (10) $9\frac{1}{4}$

Answers 1 – 10

(O) $\frac{26}{7}$	(L) $\frac{47}{12}$	● $\frac{55}{8}$	(T) $\frac{47}{10}$	(O) $\frac{37}{20}$	(E) $\frac{41}{8}$	● $\frac{31}{4}$
(I) $\frac{37}{4}$	(E) $\frac{43}{6}$	(N) $\frac{13}{5}$	(G) $\frac{47}{8}$	● $\frac{35}{4}$	(V) $\frac{49}{6}$	(H) $\frac{41}{12}$

II. Multiply.

(11) $2\frac{1}{2} \times 1\frac{2}{5}$ (12) $2\frac{1}{4} \times 3\frac{2}{3}$ (13) $1\frac{7}{8} \times 1\frac{1}{3}$

(14) $1\frac{3}{5} \times 4\frac{1}{6}$ (15) $1\frac{3}{4} \times 6$ (16) $2\frac{3}{10} \times 4$

(17) $8\frac{1}{3} \times \frac{4}{15}$ (18) $7\frac{1}{2} \times 2\frac{4}{5}$ (19) $4\frac{1}{12} \times 1\frac{1}{7}$

(20) $3\frac{1}{8} \times 1\frac{3}{5} \times 2\frac{1}{2}$ (21) $2\frac{2}{3} \times \frac{7}{10} \times 6$

Answers 11 – 21

(T) $4\frac{5}{6}$	● $8\frac{1}{4}$	(S) 21	(K) $10\frac{1}{2}$	(E) $3\frac{1}{2}$	(N) $9\frac{3}{8}$	(L) $12\frac{1}{2}$
(D) $2\frac{2}{9}$	(C) $11\frac{1}{5}$	(O) $2\frac{1}{2}$	● $9\frac{1}{5}$	(I) $11\frac{3}{4}$	(F) $4\frac{2}{3}$	(D) $6\frac{2}{3}$

6	2	12	14	8	11	18	1	5	9	20	10	15	7	16	21	4	19	13	3	17

Did You Hear About...

A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	?

Do each exercise and find your answer in one of the answer columns. Notice the word next to the answer. Write this word in the box containing the letter of the exercise.

(A) $2\frac{2}{3} \times 1\frac{3}{4}$

(B) $1\frac{7}{8} \times 2\frac{2}{5}$

(C) $3\frac{1}{2} \times 3\frac{1}{2}$

(D) $5\frac{1}{3} \times 1\frac{3}{8}$

(E) $4\frac{4}{5} \times 2\frac{1}{12}$

(F) $3\frac{1}{7} \times 1\frac{1}{6}$

(G) $1\frac{3}{10} \times 6$

(H) $2\frac{3}{4} \times 18$

(I) $2\frac{7}{10} \times \frac{5}{6}$

(J) $4\frac{1}{2} \times 4\frac{5}{9}$

(K) $3\frac{2}{3} \times 1\frac{1}{4}$

(L) $5\frac{5}{8} \times 9\frac{3}{5}$

(M) $7\frac{1}{2} \times 1\frac{1}{3} \times \frac{7}{12}$

(N) $4\frac{9}{10} \times \frac{4}{7} \times 20$

(O) In an endurance race, Philip ran for $3\frac{3}{4}$ hours at an average speed of $9\frac{3}{5}$ miles per hour. How far did he run? _____ mi

(P) A box of 100 nails weighs $1\frac{5}{8}$ pounds. Mark used $3\frac{1}{3}$ boxes of nails to build a 2-story treehouse. How many pounds of nails did he use? _____ lb

(Q) There are 3 starfighters and 10 aliens in the play "Space Trek." Each alien costume takes $2\frac{1}{4}$ yards of material. How much material is needed for all the alien costumes? _____ yd

$5\frac{5}{6}$ BECAUSE	54 UNDERWEAR
45 TOYS	$23\frac{1}{4}$ HERE
10 HIS	$4\frac{1}{2}$ KID
$20\frac{1}{2}$ HIM	$4\frac{5}{8}$ HOLES
$4\frac{2}{3}$ THE	$3\frac{2}{3}$ MOTHER
$5\frac{1}{3}$ BIG	$49\frac{1}{2}$ TO
36 NEVER	$22\frac{1}{2}$ OUT
$10\frac{3}{4}$ THAT	$12\frac{1}{4}$ WHO
$2\frac{1}{4}$ BUY	$37\frac{1}{2}$ A
$4\frac{7}{12}$ NEW	$7\frac{4}{5}$ NOT
$7\frac{1}{3}$ TOLD	56 IT'S
$5\frac{5}{12}$ WORN	$2\frac{1}{5}$ GET

What Is the Difference Between a Well-Dressed Lady and a Tired Dog?

Do each exercise below and find your answer in the appropriate answer column. Notice what is written in the two boxes next to the answer. Write the same thing in the two boxes above the exercise number at the bottom of the page.

(1) $\frac{3}{8} + \frac{1}{2}$

(2) $\frac{3}{4} - \frac{1}{3}$

(3) $\frac{2}{3} + \frac{5}{6}$

(4) $\frac{11}{12} - \frac{1}{4}$

(5) $\frac{1}{2} + \frac{7}{9}$

(6) $7\frac{9}{10} - 4\frac{2}{5}$

(7) $2\frac{1}{4} + 3\frac{9}{16}$

(8) $12\frac{5}{8} - 8\frac{1}{6}$

(9) $4\frac{2}{3} + 1\frac{4}{5}$

(10) $9\frac{1}{2} - 5\frac{3}{4}$

(11) $\frac{2}{3} \times \frac{7}{8}$

(12) $\frac{3}{10} \times \frac{8}{9}$

(13) $\frac{5}{12} \times \frac{1}{5} \times 8$

(14) $\frac{3}{8}$ of 24

(15) $1\frac{3}{4} \times 2\frac{2}{5}$

(16) $7\frac{1}{2} \times 1\frac{5}{9}$

(17) $\frac{7}{16}$ of 20

(18) $3\frac{5}{6} \times 12$

(19) $2\frac{7}{10} \times 2\frac{7}{10} \times \frac{1}{3}$

(20) Hats R Us received a shipment of 60 novelty baseball caps. Of the caps, had bug antennae, $\frac{2}{5}$ had moose antlers, and the rest had plastic propellers. How many of the caps had plastic propellers?

Answers 1 – 10:

A P	$6\frac{4}{15}$
T S	$1\frac{5}{18}$
■ W	$3\frac{3}{4}$
D Y	$1\frac{1}{2}$
E ■	$5\frac{13}{16}$
R S	$\frac{7}{8}$
L O	$4\frac{7}{24}$
H E	$3\frac{1}{2}$
■ T	$\frac{2}{3}$
O G	$6\frac{7}{15}$
V E	$1\frac{1}{18}$
■ A	$\frac{5}{12}$
A R	$5\frac{15}{16}$
■ S	$4\frac{11}{24}$

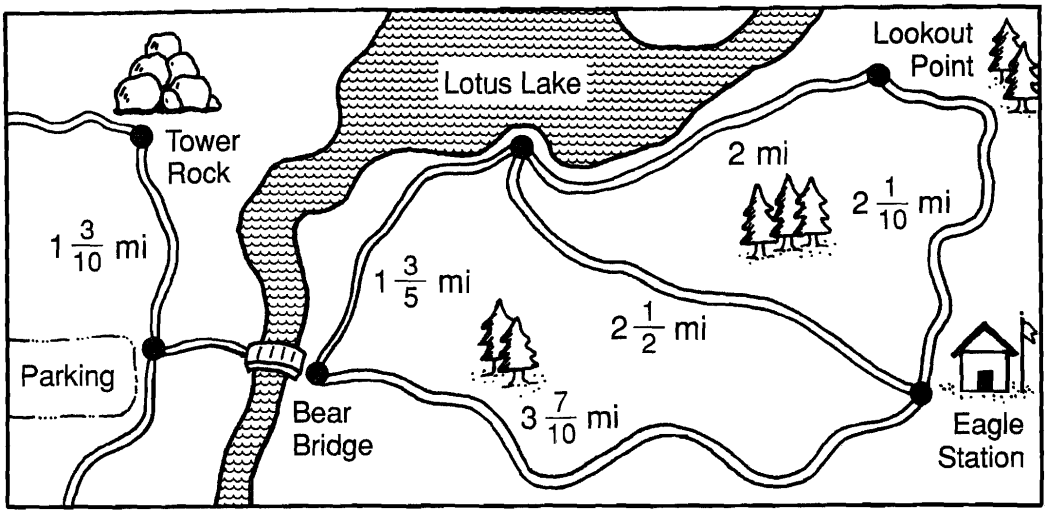
Answers 11 – 20:

T E	$3\frac{7}{10}$
■ D	$8\frac{3}{4}$
T H	$\frac{7}{12}$
O D	13
R T	$4\frac{1}{5}$
E A	46
T ■	$\frac{2}{5}$
N D	$\frac{2}{3}$
A N	16
S A	$9\frac{3}{4}$
■ A	$\frac{4}{15}$
L A	$11\frac{2}{3}$
K I	$2\frac{43}{100}$
■ P	9

11	7	16	3	10	18	1	12	8	19	15	2	13	4	6	17	9	14	20	5

What Can You Use to Cut Through Waves?

Use the map to solve the problems below. Cross out the letter next to each correct answer. When you finish, the answer to the title question will remain.



F	$2:45$
A	$1\frac{4}{5}$
S	100
T	120
W	$1\frac{2}{5}$
E	$8\frac{1}{5}$
L	69
A	3:30
S	$3\frac{7}{10}$
T	$3\frac{1}{4}$
A	74
P	$7\frac{1}{8}$
E	$9\frac{2}{5}$
W	$6\frac{5}{8}$
R	$1\frac{1}{5}$

1. On Sunday, Boy Scout Troop 2 hiked from Bear Bridge to Lotus Lake, then to Lookout Point, then to Eagle Station, and then back to Bear Bridge. How far did Troop 2 hike that day? _____ mi

2. Jeff hiked $\frac{2}{3}$ of the distance from Lookout Point to Eagle Station and then stopped for lunch. How far had he hiked? _____ mi

3. How much farther is it from Eagle Station to Bear Bridge than from Eagle Station to Lotus Lake? _____ mi

4. Sierra Hiking Club took 12 tents and 20 sleeping bags on a weekend camping trip. Each tent weighed $5\frac{3}{4}$ pounds. What was the total weight of the tents? _____ lb

5. Monica hiked from Bear Bridge to Lotus Lake in $1\frac{1}{2}$ hours. She spent 3 hours at the lake and then hiked back to Bear Bridge in $1\frac{1}{4}$ hours. If she left at 9:00 A.M., what time did she get back? _____ P.M.

6 The distance from Tower Rock to Owl Creek (not shown) is $2\frac{1}{2}$ times the distance from Tower Rock to the parking lot. How far is it from Tower Rock to Owl Creek? _____ mi

7. The record for the longest trout caught in Lotus Lake is $25\frac{1}{2}$ inches. How much shorter than the record was the $18\frac{3}{8}$-inch trout that Karen caught? _____ in.

8. On July 4 weekend, 180 people hiked on the trails near Lotus Lake. Of these, $\frac{1}{3}$ camped overnight. How many of the hikers did not camp overnight? _____

On The Button

Here is a BUTTON you can cut out and wear. To decode the button:

Do each exercise and find your answer around the rim of the button. Each time the answer appears, write the letter of the exercise above it.

(G) $\frac{1}{5} \div \frac{2}{3}$

(H) $\frac{1}{4} \div \frac{3}{8}$

(O) $\frac{2}{5} \div \frac{7}{10}$

(M) $\frac{2}{15} \div \frac{1}{6}$

(T) $\frac{4}{5} \div \frac{1}{2}$

(E) $\frac{8}{9} \div \frac{2}{3}$

(A) $\frac{5}{12} \div \frac{3}{16}$

(S) $\frac{3}{4} \div \frac{1}{8}$

(W) $5 \div \frac{1}{4}$

(R) $6 \div \frac{4}{7}$

(N) $\frac{1}{2} \div 4$

(C) $\frac{9}{10} \div 12$

(V) $\frac{5}{8} \div \frac{3}{10}$

(L) $\frac{8}{11} \div \frac{2}{11}$

(I) A turtle walked $\frac{1}{2}$ mile at the rate of $\frac{1}{5}$ mile per hour. How long did it take?

_____ hr

(F) A certain math textbook is $\frac{3}{4}$ of an inch thick. How many of these books will fit on a shelf that is 3 feet wide?
(1 ft = 12 in.) _____

Abracadabra, It's Magic

1. What magic trick does Mr. Utterbunk perform every evening?

$1\frac{7}{18}$	$2\frac{5}{8}$	$\frac{1}{4}$	6	$\frac{8}{35}$	$\frac{3}{4}$	$4\frac{4}{7}$	$\frac{5}{12}$	$6\frac{8}{9}$	$\frac{2}{9}$	$4\frac{4}{7}$	6	$\frac{3}{10}$	$\frac{3}{7}$	$1\frac{11}{24}$	$1\frac{1}{2}$	$\frac{7}{10}$	$1\frac{11}{24}$	$\frac{3}{4}$	$1\frac{11}{24}$	$\frac{7}{10}$	$2\frac{5}{8}$

2. What did the magician say to the fisherman?

$7\frac{1}{3}$	$\frac{2}{9}$	$10\frac{2}{3}$	$1\frac{2}{3}$	$4\frac{3}{8}$	$1\frac{11}{24}$	$2\frac{3}{4}$	$10\frac{2}{3}$	$\frac{3}{10}$	$2\frac{7}{9}$	,	$9\frac{7}{9}$	$1\frac{11}{24}$	$4\frac{4}{7}$	$2\frac{3}{8}$	$\frac{7}{8}$	$10\frac{2}{3}$	$\frac{3}{10}$	$2\frac{7}{9}$

To decode the answers to the MAGICAL mysteries:
Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(K) $2\frac{2}{3} \div 1\frac{3}{5}$

(E) $4\frac{1}{2} \div 1\frac{5}{7}$

(H) $3\frac{1}{3} \div 2\frac{2}{5}$

(S) $2\frac{1}{4} \div 5\frac{2}{5}$

(O) $3\frac{3}{4} \div 12\frac{1}{2}$

(R) $8 \div 10\frac{2}{3}$

(I) $\frac{7}{12} \div 2\frac{5}{8}$

(Y) $9\frac{1}{2} \div 4$

(U) $2\frac{2}{7} \div 10$

(P) $5\frac{1}{2} \div \frac{3}{4}$

(T) $7\frac{4}{5} \div 1\frac{3}{10}$

(N) $6 \div 1\frac{5}{16}$

(D) $8\frac{1}{3} \div 3$

(A) $4\frac{7}{12} \div 3\frac{1}{7}$

(G) There are 3 boys and 2 girls in the Krunch family. Mr. Krunch bought $3\frac{1}{2}$ pounds of candy to divide equally among them. How much candy did each child get?

_____ lb

(C) It takes 1 cup of liquid fertilizer to make $7\frac{1}{2}$ gallons of spray. How much liquid fertilizer is needed to make 80 gallons of spray?

_____ c

Math Without Computing

$40 \div 7\frac{1}{2} = 5\frac{1}{3}$	$12 \div 1\frac{1}{4} = 9\frac{3}{5}$	$62\frac{1}{2} \div 4 = 15\frac{5}{8}$

Use the quotients in the box above to answer the following questions:

(1) Ms. Mundo made 40 ounces of tropical punch to pour into glasses. Each glass holds $7\frac{1}{2}$ ounces.

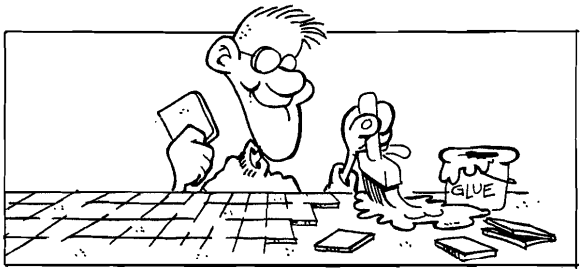
A. How many glasses will be completely filled?
B. How many glasses will be needed to hold all the punch?
C. What fraction of the last glass is full of punch?

(2) Elevator Music, Inc., has been hired to provide **12** hours of continuous taped music. Each tape plays for $1\frac{1}{4}$ hours.

A. How many tapes will be needed altogether?
B. How many of the tapes will be played completely?
C. What fraction of the last tape will be played?

(3) Mr. Reznick is gluing ceramic tiles on a kitchen counter $62\frac{1}{2}$ inches long. Each tile is 4 inches square.

A. How many complete tiles are used in each row?
B. How many tiles are needed for each row altogether?
C. In each row, what fraction of the last tile is used?



(4) Dawn has **12** yards of silk. She needs $1\frac{1}{4}$ yards of silk to make one skirt. How many skirts can she make?

(5) Mr. Kazoo is planning to build a fence gate 40 inches wide. He plans to use boards $7\frac{1}{2}$ inches wide. How many boards should he buy?

(6) Andrea cut $62\frac{1}{2}$ inches of ribbon into 4 equal hair ribbons. How long was each hair ribbon?

(7) Nuts to You has 40 pounds of almonds to pack into cans. Each can holds $7\frac{1}{2}$ pounds. After completely filling as many cans as possible, what part of another can is left?

(8) The coach needs 12 pounds of peanut butter to feed his football team. If he buys peanut butter in jars containing $1\frac{1}{4}$ pounds, how many jars should he buy?

(9) Naoki has 62% feet of crepe paper left on a roll. She is cutting it into streamers 4 feet long.

A. How many 4-foot streamers can she cut?
B. What fraction of a streamer will be left on the roll?

What Did the Ms. Snerd Say When Her Son Ate 17 Chocolate-Chip Waffles with 2 Pints of Maple Syrup?

Do each exercise below. Find your answer and notice the letter next to it. Look for this letter in the string of letters near the bottom of the page and CROSS IT OUT each time it appears. When you finish, write the remaining letters in the rectangle at the bottom of the page.

(1) $\frac{2}{3} \times \frac{1}{5}$

(2) $\frac{3}{4} \times \frac{7}{12}$

(3) $\frac{3}{8}$ of $\frac{4}{9}$

(4) $\frac{7}{10} \div \frac{1}{2}$

(5) $\frac{5}{12} \div \frac{5}{8}$

(6) $\frac{9}{20} \div \frac{4}{15}$

(7) $1\frac{1}{3} \times 2\frac{1}{2}$

(8) $5\frac{1}{4} \times 3\frac{1}{7}$

(9) $1\frac{7}{8} \times \frac{7}{10} \times 4$

(10) $4\frac{1}{2} \div 1\frac{4}{5}$

(11) $2\frac{5}{8} \div 3\frac{3}{4}$

(12) $7\frac{3}{10} \div 5$

(13) $12 \div 3\frac{1}{2}$

(14) $6\frac{1}{4} \div \frac{5}{6}$

(15) $\frac{2}{3} \times \frac{2}{3} \times \frac{2}{3}$

(16) Farmer Brown can harvest $2\frac{1}{3}$ acres of corn in 1 day. How many acres of corn can he harvest in $10\frac{1}{2}$ days?

_____ acres

(17) Farmer Brown can harvest $2\frac{1}{3}$ acres of corn in 1 day. How many days will it take him to harvest $10\frac{1}{2}$ acres of corn?

_____ days

• ANSWERS •

(R) $7\frac{1}{2}$	(D) $3\frac{1}{3}$			(G) $\frac{7}{16}$	(W) $5\frac{2}{3}$
(T) $1\frac{2}{5}$	(F) 27	(B) $\frac{7}{10}$	(K) $\frac{2}{3}$	(I) $24\frac{1}{2}$	(Y) $16\frac{1}{2}$
(S) $4\frac{1}{2}$	(J) $\frac{2}{15}$	(P) $5\frac{1}{4}$	(U) $3\frac{3}{7}$	(H) $\frac{9}{20}$	(A) $8\frac{1}{4}$
(M) $2\frac{1}{2}$	(N) $\frac{8}{27}$	(Z) $\frac{1}{6}$	(L) $2\frac{5}{6}$	(V) $1\frac{11}{16}$	(C) $1\frac{23}{50}$

T C S H G M O N D W I W P K S A R Y J F S I F T B U L Z V P E N

ANSWER TO PUZZLE:

What Do Sea Monsters Eat?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

(1) Ms. Daza bought $3\frac{1}{2}$ yards of yellow fabric. She used $\frac{2}{3}$ of the fabric to make a chicken costume. How much fabric did she use? _____ yd

(2) Julia studied math for $3\frac{1}{3}$ hours during the 4 days before her last math test. What was the average amount of time she studied each day? _____ h

(3) There is less gravity on the planet Trang than on Earth. In fact, you could jump about $2\frac{2}{3}$ times as high on Trang as on Earth. If you can jump $4\frac{1}{4}$ feet on Earth, how high could you jump on Trang? _____ ft

(4) A gasoline pump delivers $4\frac{2}{5}$ gallons of gas per minute. How many minutes will it take to fill a gas tank that holds $16\frac{1}{2}$ gallons? _____ min

(5) A piece of plywood 24 inches wide is cut into strips $2\frac{1}{2}$ inches wide. How many strips of this width can be cut? _____

(6) The distance a bicycle travels with each turn of its wheels is about $3\frac{1}{7}$ times the tire diameter. The tires on Mike's bicycle have a diameter of $24\frac{1}{2}$ inches. How far does it travel with each turn of the wheels? _____ in.

(7) An aquarium holds $6\frac{1}{4}$ gallons of water. The water level has dropped to $\frac{4}{5}$ of this amount. How much water should be added to fill the aquarium? _____ gal

(8) Sean used $\frac{3}{4}$ cup of sugar to make a dozen brownies. How much sugar is in each brownie? _____ cup

WA 77	LO $\frac{5}{6}$	FI $\frac{3}{20}$	VE $\frac{1}{16}$	DI $3\frac{3}{4}$	SH $74\frac{1}{2}$	AN $10\frac{3}{4}$
TS $2\frac{1}{3}$	DS 8	EA $1\frac{1}{4}$	HI $1\frac{5}{8}$	OU 9	PS $3\frac{1}{6}$	IT $11\frac{1}{3}$

How's Business?

1. Muffler salesman:

“ ”

$\frac{5}{16}$	$5\frac{5}{7}$	$1\frac{5}{12}$	$3\frac{7}{10}$	$1\frac{1}{14}$	$2\frac{2}{9}$	$10\frac{1}{4}$	16	$3\frac{3}{4}$	$5\frac{1}{2}$

2. Fireworks salesman:

“ ”

$7\frac{1}{2}$	$\frac{5}{16}$	$3\frac{7}{10}$	$\frac{3}{8}$	$\frac{3}{8}$	$4\frac{3}{5}$	$\frac{5}{6}$	18	$\frac{7}{15}$	$\frac{7}{15}$	$\frac{11}{15}$	16	$3\frac{3}{4}$	$5\frac{1}{2}$

3. Lumber salesman:

“ ”

16	$5\frac{3}{4}$	$9\frac{4}{5}$	$\frac{7}{15}$	$\frac{7}{15}$	$8\frac{9}{16}$	$\frac{5}{16}$	$3\frac{3}{4}$	$9\frac{1}{2}$	$5\frac{7}{18}$	$3\frac{3}{4}$	$\frac{7}{15}$	$9\frac{4}{5}$

Each of these salesmen is answering the question, "HOW'S BUSINESS?"
To decode their answers:

Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(M) $\frac{1}{3} + \frac{2}{5}$

(L) $\frac{7}{8} - \frac{1}{2}$

(H) $\frac{3}{4} + \frac{2}{3}$

(D) $3\frac{5}{16} + 5\frac{1}{4}$

(G) $9\frac{7}{10} - 4\frac{1}{5}$

(T) $7\frac{2}{3} + 2\frac{7}{12}$

(K) $13\frac{5}{9} - 8\frac{1}{6}$

(Y) $6\frac{1}{2} - 1\frac{9}{10}$

(E) $\frac{3}{8} \times \frac{5}{6}$

(U) $\frac{3}{4} \div \frac{7}{10}$

(I) $\frac{2}{5}$ of 40

(R) $4\frac{1}{2} \times 1\frac{2}{3}$

(S) $8\frac{1}{3} \div 3\frac{3}{4}$

(B) $2\frac{5}{8} \times \frac{4}{7} \times 12$

(X) $20 \div 3\frac{1}{2}$

(A) $1\frac{3}{5} \times 2\frac{5}{16}$

(O) $4\frac{2}{3} \div 10$

(N) George is making 8 gallons of Tropical Trip punch. He has already poured in $1\frac{3}{4}$ gal of pineapple juice and $2\frac{1}{2}$ gal of orange juice. The only other ingredient is 7-Up. How much 7-Up does George need? _____ gal

(W) Martha likes to walk around a park near her house. The park is square, $\frac{7}{10}$ mi on each side. One morning she walked around the park $3\frac{1}{2}$ times before stopping to rest. How far had she walked? _____ mi

Why Did Zorna Flunk the Grammar Test?

Solve each problem below. Find your solution and notice the two letters next to it. Write these letters in the two boxes above the exercise number at the bottom of the page.

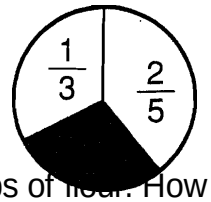
(1) Joe Ravioli went running 3 days this week. He ran $2\frac{1}{2}$ mi on Monday, $2\frac{3}{10}$ mi on Wednesday, and $3\frac{2}{5}$ mi on Friday. How far did he run altogether this week?

(2) Nuts to You sells trail mix in 16-ounce packages. Half the weight is peanuts. There are also 2 oz of almonds, 1 oz of cashews, and 3 oz of raisins. The rest is chocolate chips. What fraction of the mix is chocolate chips?

(3) Six Flags Amusement Park has found that $\frac{3}{5}$ of its customers ride the Colossus roller coaster. Of these, $\frac{1}{4}$ ride it again. What fraction of the customers ride the roller coaster twice?

(4) A record album is $\frac{3}{16}$ of an inch thick. How many albums can be stacked to fit in a box 12 in. high?

(5) In the figure shown to the right, what fractional part of the circle is shaded?



(6) A recipe for 2 dozen cookies calls for $1\frac{1}{3}$ cups of flour. How much flour would be needed to make 5 dozen cookies?

(7) A backpacking club can average $2\frac{1}{2}$ miles per hour. At that rate, how long will it take for a hike of $8\frac{3}{4}$ miles?

(8) Lisa is working on plans for a 12-acre housing development. A park will cover $2\frac{1}{2}$ acres, and paved areas will take $1\frac{3}{4}$ acres. How many acres are left for home sites?

(9) Biff earned $45 working at Happy Days Drive-In. He spent $\frac{1}{3}$ of the money on gas for his car and $\frac{1}{5}$ of it on flowers for his girl friend. How much money does he have left for the big date?

(IT) $\frac{1}{4}$

(EN) $3\frac{1}{2}$ h

(EM) $2\frac{3}{4}$ c

(AD) $\frac{3}{20}$

(MM) $21

(TO) $8\frac{3}{8}$

(AS) $8\frac{1}{5}$ mi

(TH) $\frac{3}{10}$

(AT) $4\frac{1}{8}$ h

(SE) 64

(LI) $8\frac{1}{2}$ mi

(EH) $3\frac{1}{3}$ c

(SH) $\frac{1}{8}$

(NO) $7\frac{3}{4}$

(RE) $25

(CO) $\frac{4}{15}$

(UR) 50

2	6	3	8	5	9	1	7	4

Why Did Karjam Get a Flat Tire?

Write the letter of each correct answer in the box containing the number of the exercise. If the answer has a ●, shade in the box instead of writing a letter.

Write each fraction as a decimal.

(1) $\frac{3}{10}$ (2) $\frac{7}{10}$ (3) $\frac{1}{2}$ (4) $\frac{1}{5}$ (5) $2\frac{3}{5}$ (6) $2\frac{1}{10}$

Answers

(S) 0.2 (L) 0.4 (●) 2.1 (N) 2.2 (O) 2.6 (A) 0.7 (R) 0.3 (E) 0.5 (V) 0.8

Write each decimal as a lowest-terms fraction or mixed number.

(7) 0.7 (8) 0.4 (9) 3.5 (10) 8.2 (11) 8.9 (12) 3.8

Answers

(P) $8\frac{2}{5}$ (A) $\frac{7}{10}$ (I) $3\frac{4}{5}$ (E) $3\frac{1}{2}$ (Y) $\frac{3}{10}$ (●) $8\frac{1}{5}$ (G) $3\frac{3}{5}$ (H) $8\frac{9}{10}$ (T) $\frac{2}{5}$

Write each fraction as a decimal.

(13) $\frac{43}{100}$ (14) $\frac{7}{100}$ (15) $\frac{1}{4}$ (16) $\frac{9}{25}$ (17) $\frac{13}{50}$ (18) $\frac{17}{20}$ (19) $5\frac{16}{25}$ (20) $5\frac{3}{4}$

Answers

(R) 0.36 (H) 5.75 (●) 0.85 (C) 5.36 (M) 0.65 (N) 0.25 (O) 0.43 (A) 0.26 (K) 0.44 (T) 5.64 (●) 0.07 (B) 5.72

Write each decimal as a lowest-terms fraction or mixed number.

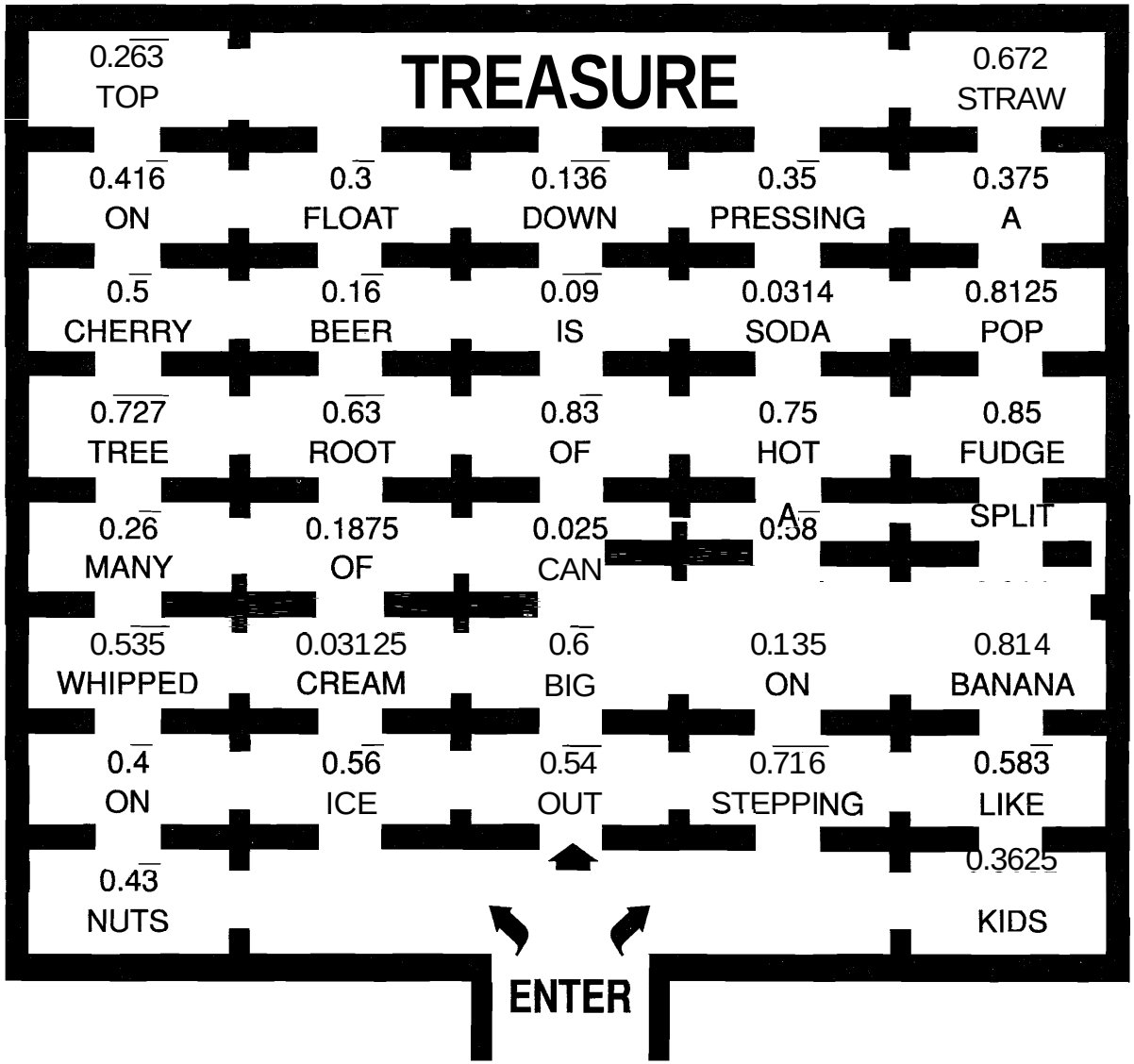
(21) 0.67 (22) 0.09 (23) 0.25 (24) 0.62 (25) 4.35 (26) 9.75 (27) 4.48 (28) 9.06

Answers

(U) $9\frac{43}{50}$ (R) $4\frac{12}{25}$ (P) $\frac{14}{25}$ (●) $\frac{31}{50}$ (●) $\frac{67}{100}$ (F) $9\frac{3}{4}$ (L) $\frac{3}{10}$ (D) $\frac{1}{4}$ (A) $4\frac{11}{20}$ (W) $4\frac{7}{20}$ (K) $9\frac{3}{50}$ (E) $\frac{9}{100}$

19	11	22	16	9	14	25	7	4	21	2	6	26	13	1	28	24	12	15	18	8	20	3	10	27	5	17	23

Maze Phrase



Name each fraction as a repeating or terminating decimal. Find your answer in the maze. SHADE IN each room that contains a correct answer.

Then find a path to the Treasure that goes only through rooms that are NOT shaded. The words in those rooms will form an a-mazing message!

(1) $\frac{5}{6}$ (2) $\frac{6}{11}$

(3) $\frac{3}{8}$ (4) $\frac{4}{9}$

(5) $\frac{5}{9}$ (6) $\frac{2}{3}$

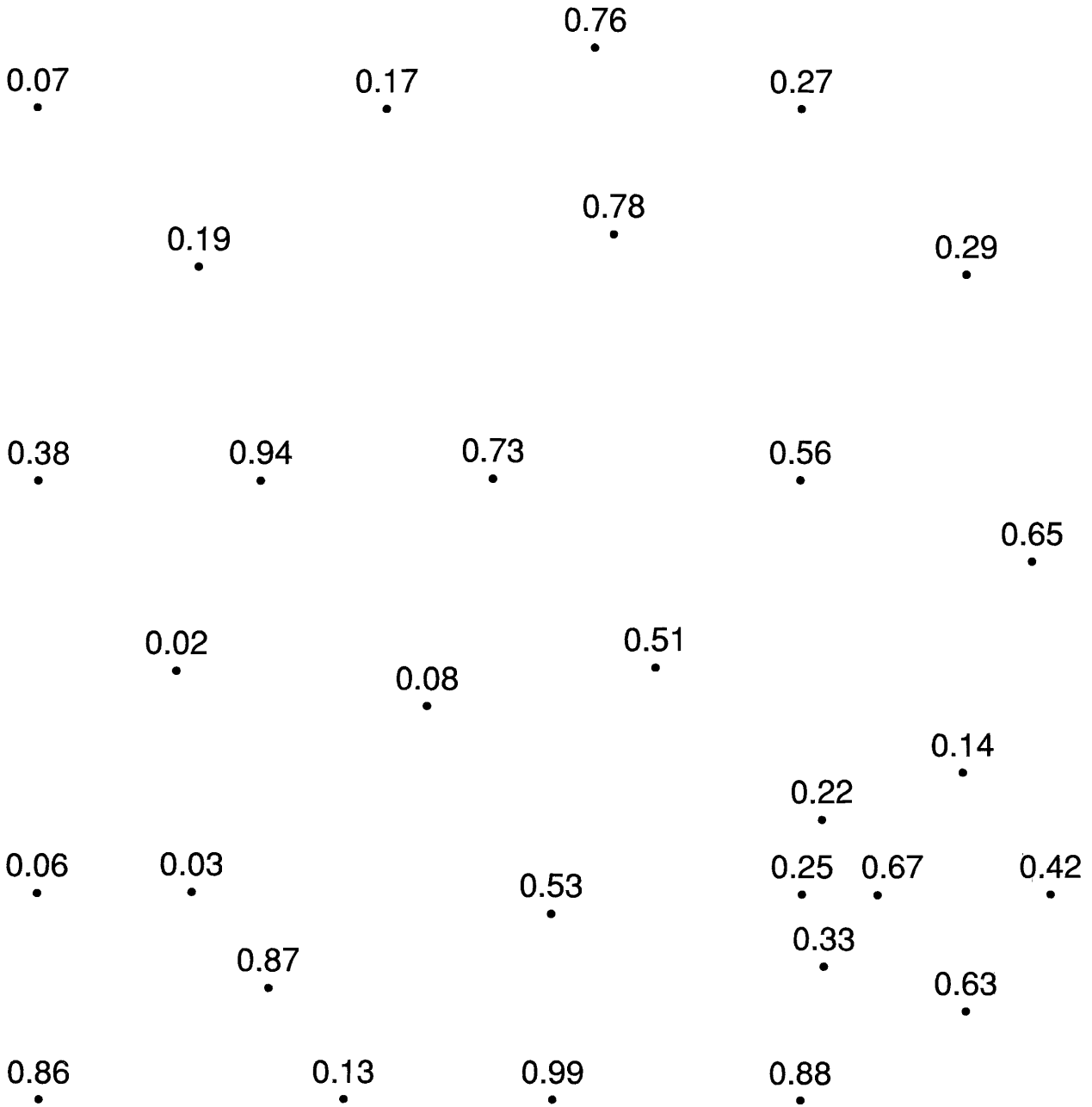
(7) $\frac{13}{16}$ (8) $\frac{4}{15}$

(9) $\frac{7}{12}$ (10) $\frac{3}{22}$

(11) $\frac{14}{99}$ (12) $\frac{1}{32}$

(13) $\frac{3}{4}$ (14) $\frac{1}{3}$

DOT PLOT



Write each fraction as a decimal rounded to the nearest hundredth. Find your answers to the left. Connect the dots in the same order as the problems are numbered. (You may go through the same dot twice.)

(1) $\frac{2}{3}$	(2) $\frac{1}{7}$	(3) $\frac{5}{8}$
(4) $\frac{2}{9}$	(5) $\frac{5}{12}$	(6) $\frac{13}{40}$
(7) $\frac{4}{6}$	(8) $\frac{1}{4}$	(9) $\frac{9}{16}$
(10) $\frac{3}{11}$	(11) $\frac{7}{9}$	(12) $\frac{1}{6}$
(13) $\frac{1}{12}$	(14) $\frac{1}{30}$	(15) $\frac{2}{35}$
(16) $\frac{6}{7}$	(17) $\frac{1}{8}$	(18) $\frac{8}{15}$
(19) $\frac{99}{100}$	(20) $\frac{875}{1,000}$	(21) $\frac{20}{80}$

"You might get a kick out of this!"

Where Is Moscow?

Each quotient in the table below is given as it would appear on an 8-digit hand calculator. Use this information to do the exercises.

Find each answer at the bottom of the page. Write the letter of the exercise in the box containing its answer.

$1 \div 7$	0.1428571	$23 \div 27$	0.8518518
$5 \div 12$	0.4166666	$39 \div 64$	0.609375
$9 \div 32$	0.28125	$13 \div 17$	0.7647058
$14 \div 15$	0.9333333	$4 \div 11$	0.3636363
$3 \div 16$	0.1875	$2 \div 55$	0.0363636

Write each fraction as a decimal rounded to the nearest hundredth.

(N) $\frac{14}{15}$	(A) $\frac{13}{17}$	(T) $\frac{5}{12}$	(H) $\frac{1}{7}$
(O) $\frac{39}{64}$	(T) $\frac{3}{16}$	(E) $\frac{4}{11}$	(A) $\frac{2}{55}$

II. Write each fraction as a decimal rounded to the nearest thousandth.

(E) $\frac{5}{12}$	(T) $\frac{9}{32}$	(U) $\frac{23}{27}$	(R) $\frac{14}{15}$
(O) $\frac{39}{64}$	(I) $\frac{3}{16}$	(N) $\frac{4}{11}$	(W) $\frac{2}{55}$

III. Write each fraction as a decimal rounded to the nearest hundredth. Then add or subtract. Your answer will be a decimal very close to the actual sum or difference of the fractions.

(T) $\frac{1}{7} + \frac{5}{12}$	(S) $\frac{14}{15} + \frac{39}{64}$	(N) $\frac{23}{27} + \frac{3}{16}$	(O) $\frac{13}{17} - \frac{1}{7}$
(C) $\frac{39}{64} - \frac{4}{11}$	(X) $\frac{14}{15} - \frac{3}{16}$	(B) $\frac{5}{12} + \frac{9}{32}$	(P) $\frac{4}{11} - \frac{2}{55}$

0.62	0.852	0.19	1.41	0.188	0.93	0.361	0.56	0.14	0.417	0.34	0.70	0.76	0.933	1.04
0.364	0.36	0.74	0.281	0.931	0.42	0.609	0.78	0.32	0.04	1.54	0.67	0.25	0.61	0.036

Trivia Test

1. What is one thing it always takes to build a house?

5.9	3.3	38.7	0.2	8.5	6.6	3.1	17.1	0.2	7.7	9.6	6.6	5.9	11.5	18.6	16.5

2. What did the boy measuring stick say about the girl measuring stick?

11.5	6.3	40.8	5.9	6.6	1.2	1.4	1.2	0.2	31.1	23.8	2.4	1.2	2.4	10.9

Use a calculator for these exercises. The table below will help you change fractions to decimals. Do each exercise and find your answer in the code. Each time the answer appears, write the letter of the exercise above it. (Answers are rounded to the nearest tenth.)

Fraction-Decimal Equivalents

$\frac{1}{2} = 0.5$	$\frac{1}{4} = 0.25$	$\frac{1}{5} = 0.2$	$\frac{1}{8} = 0.125$
	$\frac{3}{4} = 0.75$	$\frac{2}{5} = 0.4$	$\frac{3}{8} = 0.375$
$\frac{1}{3} \approx 0.333$		$\frac{3}{5} = 0.6$	$\frac{5}{8} = 0.625$
$\frac{2}{3} \approx 0.667$		$\frac{4}{5} = 0.8$	$\frac{7}{8} = 0.875$

(F) $3\frac{2}{5} \times 2\frac{1}{4}$ (W) $9\frac{1}{3} \times 4\frac{3}{8}$ (U) $6\frac{3}{4} + 1\frac{7}{10}$ (E) $18\frac{1}{2} \div 7\frac{4}{5}$

(I) $20\frac{3}{5} - 9\frac{1}{8}$ (A) $47\frac{2}{3} \div 8\frac{1}{10}$ (R) $\frac{7}{8} \times 12\frac{1}{2}$ (D) $7\frac{1}{3} - 4\frac{1}{5}$

(S) $5\frac{9}{10} + 1\frac{5}{8} + 9$ (O) $3\frac{31}{100} \div 16$ (N) $7\frac{3}{4} \times \frac{2}{5} \times 2\frac{1}{8}$

(L) Sofia's computer is $4\frac{1}{2}$ inches high. She put her disk drives side-by-side on top of the computer, then her monitor on top of the disk drives. If the disk drives are $2\frac{7}{8}$ inches high and the monitor is $11\frac{1}{4}$ inches high, how high is the system? _____ in.

(M) Mr. Gray drove $387\frac{1}{2}$ miles and used $16\frac{3}{10}$ gallons of gas. How many miles per gallon did he get? _____ mpg

(P) Roger can ride his bike at an average speed of $14\frac{1}{2}$ miles per hour. At this rate, how far will he travel in $2\frac{2}{3}$ hours? _____ mi

(T) The bones of a chicken weigh about $\frac{3}{8}$ of the total weight of the chicken. Nicole bought $3\frac{7}{10}$ pounds of chickenat $0.89 per pound. How much did she pay for bones? (Round your answer to the nearest cent.) $ _____

Did You Hear About...

A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R ?

Use a calculator to change each fraction to a decimal. Round to the nearest hundredth (if necessary). Then do the exercise and round your answer to the nearest hundredth (if necessary). Find your answer and notice the word next to it. Write this word in the box containing the letter of the exercise.

(A) $2\frac{4}{7} + 5\frac{2}{9}$ 2.57 +

(B) $3\frac{1}{6} + 1\frac{3}{4}$

(C) $9\frac{7}{12} - 4\frac{1}{8}$

(D) $12\frac{1}{4} - 7\frac{11}{15}$

(E) $2\frac{1}{3} \times 3\frac{9}{16}$

(F) $6\frac{8}{11} \times 2\frac{1}{2}$

(G) $8\frac{5}{6} \div 1\frac{7}{9}$

(H) $9\frac{5}{12} \div 4\frac{3}{5}$

(I) $5\frac{1}{16} + 3\frac{6}{7}$

(J) $11\frac{2}{3} - 2\frac{1}{32}$

(K) $7\frac{3}{10} \times \frac{4}{11}$

(L) $1\frac{7}{8} \div 5$

(M) $8\frac{2}{9} + 6\frac{1}{5}$

(N) $16\frac{1}{12} - 15\frac{4}{15}$

(O) $9 \times 4\frac{13}{16}$

(P) $20 \div 3\frac{2}{7}$

(Q) $\frac{3}{8}$ of $9\frac{1}{2}$

(R) $\left(5\frac{3}{4}\right)^2$

Answers A – I:

4.74	SUGAR
16.83	MUCH
8.84	WHEN
4.92	KID
8.92	THAT
2.27	STUFF
5.45	WHO
4.96	JUNK
7.79	THE
8.29	SO
4.46	DID
17.23	LITTLE
4.52	ATE
2.05	FOOD

Answers J – R:

38.49	CANDY
0.38	OF
43.29	MEAL
3.61	A
2.34	BEST
14.42	A
6.08	WAS
0.69	GOOD
9.64	HIS
0.81	SQUARE
16.13	PIZZA
2.63	IDEA
33.06	CRACKER
0.46	FOR

What Did the Food Critic Say About the Restaurants in Australia?

Find the value of each expression. Use the values for the variables given in the chart below. Write the letter of each exercise in the box under its answer.

$a = \frac{1}{2}$	$b = \frac{1}{3}$	$c = \frac{3}{4}$	$d = \frac{2}{5}$
$m = 2$	$n = 5$	$x = 6$	$y = 10$

(E) ax	(R) bx	(Y) cx
(H) ay	(E) bnx	(T) dy
(T) amx	(H) ab	(S) $24a$
(E) any	(E) bc	(V) $24b$

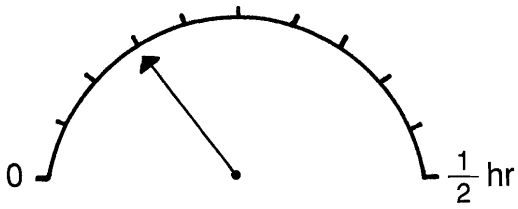
6	$\frac{1}{6}$	25	$4\frac{1}{2}$	9	12	3	2	8	$\frac{1}{4}$	$3\frac{1}{2}$	4	5	10

(T) $a + b$	(A) $a - b$	(S) $\frac{x}{a}$
(A) $a + c$	(O) $c - b$	(L) $\frac{y}{b}$
(E) $a + d$	(E) na	(T) $m - a$
(B) $b + d$	(A) $\frac{n}{a}$	(K) $\frac{4}{3}c$

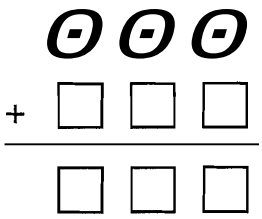
$\frac{11}{15}$	$2\frac{1}{2}$	12	$\frac{5}{6}$	$\frac{7}{12}$	1	$\frac{5}{12}$	$1\frac{1}{4}$	30	$\frac{1}{6}$	24	$1\frac{1}{2}$	$\frac{9}{10}$	10

☆ ☆ ☆ Test of Genius ☆ ☆ ☆

(1) How much time is left on this parking meter?



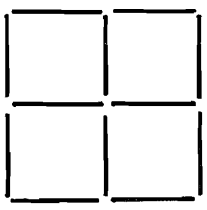
(2) Place the digits 1 through 9 in the nine squares to form a correct addition. Can this be done in more than one way?



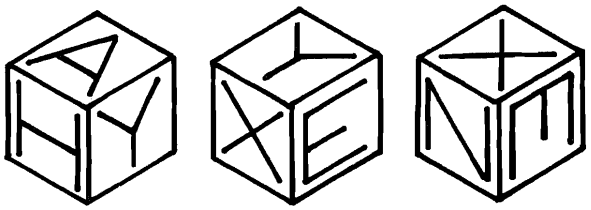
(3) A pail with 40 washers in it weighs 500 grams. The same pail with 20 washers in it weighs 420 grams. How much does the pail weigh?

(4) As a prize, a contest winner gets to draw out one bill at a time from a box containing 10 five-dollar bills, 10 ten-dollar bills, and 10 twenty-dollar bills. The drawing ends when 3 bills of the same denomination are drawn, and, of course, the contest winner keeps whatever he has drawn. What is the largest sum of money that can be won under these conditions?

(5) The toothpicks in the drawing have been arranged to form four squares. Remove two of the toothpicks and leave only two squares.



(6) Look at the three views of the same cube below. What letter is on the face opposite H, A, and Y?



(7) You have a bucket that holds 4 gallons of water and a second bucket that holds 7 gallons of water. The buckets have no markings. How can you go to the well and bring back exactly 5 gallons of water?

(8) Suppose you were a detective and found these tracks on some damp ground. Do you have any ideas about how they were made?

(9) Why are 1980 pennies worth almost $20?

SCORING KEY

8 or 9 — *Superstar Genius*
6 or 7 — *Star Genius*
4 or 5 — *Genius*
3 or less — *Genius of the Future*

What Do Kids Do Before They Learn to Read Baseball Cards?

Each row across has 6 boxes. Only three of them contain a number divisible by the given number. Circle these three numbers in each row. Notice the number-letter above each circled number. Write the letter in the matching numbered box at the bottom of the page.

1 divisible by 2	10-T	21-D	12-H	9-U	3-E	18-L
	196	825	4,374	9,701	65,250	38.669
2 divisible by 3	13-S	6-0	2-R	16-T	7-A	21-S
	46	51	913	834	7.085	4,992
3 divisible by 5	4-Y	20-T	18-H	15-V	1-S	13-E
	325	608	5,280	8.542	49.104	70,000
4 divisible by 2	14-B	15-1	11-S	1-T	7-0	19-A
	437	958	5,483	6,042	11,500	39.225
5 divisible by 3	5-T	19-E	9-A	17-S	2-H	8-N
	119	417	5,094	7,286	37,638	84.494
6 divisible by 5	11-T	17-E	8-F	5-L	14-S	20-R
	740	583	1,629	2,115	99.057	
7 divisible by both 2 and 3	8-K	17-T	14-P	10-V	8-R	17-C
	78	62	3,054	5.553	24,718	92,406

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
T	H	E	Y	L	O	O	K	A	T	T	H	E	P	I	T	C	H	E	R	S

THEY LOOK AT THE PITCHERS

Some Friendly Advice

SOME FRIENDLY ADVICE" IS HIDDEN IN THE RECTANGLE TO FIND IT

Circle letters next to each given number to show divisibility by 2.3, 5.9. or 10 Write the circled letters on the line at the right Also write the letters, in order into the boxes at the bottom of the page *HINT:* Two *of* the *given* numbers are not *divisible* by *2*, 3, 5 9, or 10, no letters *will* be *circled* lor thesenumbers

	Number	Divisible by 2	3	5	9	10	
1	4,095	S	(N)	(E)	(V)	O	NEV
2	8,170	(E)	D	(R)	L	(J)	ERJ
3	2,685	O	(U)	(M)	G	S	UM
4	534	(P)	(I)	A	T	F	PI
5	609	S	(N)	F	X	T	N
6	29,178	(T)	(O)	T	(A)	I	TOA
7	90,005	O	A	(P)	E	B	P
8	467	N	E	M	I	C	—
9	60,201	R	(I)	E	(L)	T	IL
10	3,375	S	(F)	(O)	(F)	N	EOF
11	76,380	(L)	(E)	(A)	D	(V)	LEAV
12	599,422	(E)	V	M	S	G	E
13	853,806	(S)	(W)	I	F	A	SW
14	492,570	(I)	(T)	(H)	(A)	(W)	ITHAW
15	12,685	I	A	(E)	P	B	E
16	64,423	E	D	A	L	M	—
17	9,999	K	(T)	B	(S)	T	TS
18	501,105	R	(U)	(C)	H	D	UC
19	800	(K)	M	(E)	N	(R)	KER

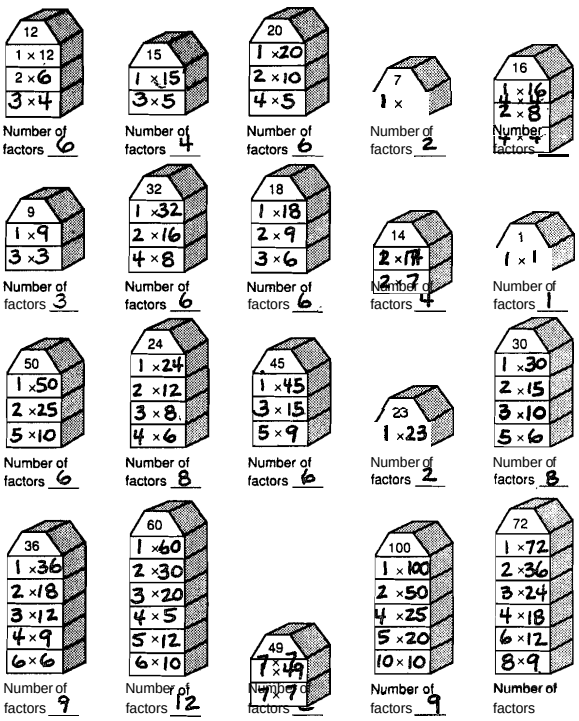
Friendly Advice

N	E	V	E	R		J	U	M	P		I	N	T	O		A		P	I	L
E		O	F																	
L	E	A	V	E	S		W	I	T	H		A		W	E	T		S	U	C
K	E	R	!																	

NOTE: Ask students which numbers have exactly 2 factors (prime numbers) and which numbers have an odd number of factors (perfect squares). You might have students look for numbers whose "factor tower" has a given number of "stories."

Factor Towers

Write a pair of factors in each "story" of the factor tower Then count the number of *different* factors and write this number in the blank



NOTE: You might have students list all the factors in pairs (or in ascending order) after completing each exercise.

Why Do Pins Get Lost?

Circle each factor of the given number Then write the letters from the boxes that do *not* contain factors on the line at the right

Factors of 32	(2) P	T	I	F	(4) R	14 H	3 E	(1) A	(16) N	18 Y	THEY
Factors of 24	(8) H	(1) S	9 A	(12) D	(4) I	(3) V	(24) L	18 R	48 E	(6) L	(2) M
Factors of 10	8 P	(5) A	(10) L	3 O	15 I	(2) S	20 N	100 T	(1) S	4 E	50 D
Factors of 48	(3) T	(8) O	(48) A	(12) W	(6) L	(16) F	36 I	(2) S	(24) T	(1) F	96 N	(4) H
Factors of 64	(16) S	(32) T	(1) A	24 O	(8) R	(4) D	6 N	(64) P	(2) D	128 E	
Factors of 31	(31) A	62 D	310 I	11 R	3 E	7 C	(1) H	2 T	8 I	16 O	0 N
Factors of 42	(3) P	(21) H	(6) B	(14) I	(2) U	16 A	(42) T	4 N	(7) T	84 D	(1) O
Factors of 27	6 H	(9) I	(27) D	54 E	(1) R	270 A	7 D	13 E	(3) N	0 D	
Factors of 80	(20) T	(8) U	(80) P	(4) L	(16) O	(2) W	12 I	(5) T	(40) H	6 N	(1) T	(10) O
Factors of 70	(35) N	(7) S	(14) O	3 T	(10) E	(70) N	(5) O	140 H	(1) M	0 E	(2) R
Factors of 75	(3) S	(15) L	9 O	(1) U	150 T	(25) S	750 H	4 E	(75) N	(5) D	2 R

THEY ARE POINTED IN ONE DIRECTION AND HEADED IN THE OTHER

What Do You Call It When a Bunch of Kids Throw Crayons and Poster Paint at You?

For each exercise, find the two factors that are missing and write them in the blanks. Cross out the box containing your answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

1. Factors of 8: {1, 4, 2, 8}
2. Factors of 20: {1, 2, 5, 20, 4, 10}
3. Factors of 15: {1, 5, 3, 15}
4. Factors of 28: {1, 2, 7, 28, 4, 14}
5. Factors of 40: {1, 2, 4, 5, 10, 40, 8, 20}
6. Factors of 66: {1, 2, 3, 6, 22, 66, 11, 33}
7. Factors of 100: {1, 2, 4, 10, 20, 50, 100, 5, 25}
8. Factors of 21: {1, 3, 7, 21}
9. Factors of 36: {1, 2, 3, 4, 9, 12, 36, 6, 18}
10. Factors of 13: {1, 13}
11. Factors of 60: {1, 2, 3, 4, 5, 6, 10, 15, 30, 60, 12, 20}
12. Factors of 18: {1, 2, 6, 18, 3, 9}
13. Factors of 45: {1, 3, 5, 45, 9, 15}
14. Factors of 96: {1, 2, 3, 4, 6, 12, 16, 24, 48, 96, 8, 32}

IT 7,21	TH 11,33	AN 9,12	IS 4,14	EW 6,18	A 4,8	IM 8,32	HU 2,8	SO 12,20	RT 8,15
BR 9,15	AT 3,12	ME 1,13	S 4,10	TA 6,15	ND 5,25	UP 3,15	LU 3,9	CK 12,18	Y 8,20

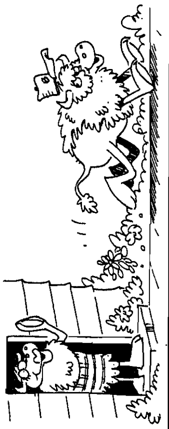
A N A R T A T T A C K

AN ART ATTACK

C-11 TOPIC 1-b: Factors

What Did the Mama Buffalo Say to the Little Boy Buffalo as He Was Leaving for School?

Exactly 60 of the squares below contain prime numbers. Shade in each of these 60 squares. Be sure to use pencil, so you can erase if necessary.



7	10	21	34	6	19	48	39	15	28	40	9	35	26	44	18	50	32	24	14	1
3	42	27	12	33	49	38	4	22	46	30	16	25	36	45	20	8	12	27	38	21
29	17	41	2	46	11	32	31	47	5	16	23	43	13	37	49	41	7	31	3	19
47	30	6	17	42	43	25	2	34	15	1	29	50	22	5	36	9	11	44	28	37
23	39	4	13	20	7	35	41	17	2	26	11	14	45	31	8	40	3	24	33	23
19	18	48	43	10	37	21	6	49	5	27	13	34	16	47	38	22	29	12	30	41
17	3	31	7	1	13	32	2	23	47	25	29	43	19	11	46	15	5	50	42	37

bison (Bye, son)

TOPIC 1-c Prime and Composite Numbers Numbers Less than 50

C-12

NOTE: You might use this page to show students the Sieve of Eratosthenes.

What's Wrong With Getting a Haircut?

Cross out each box containing a number that is not prime. When you're finished, only the boxes containing prime numbers will be **left**. Write the letters from these boxes into the spaces at the bottom of the page.

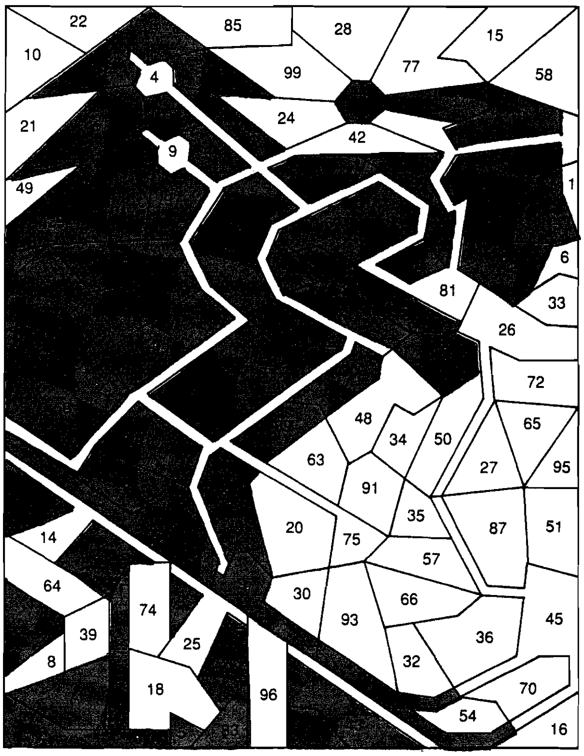
1 H	2 I	3 T	4 A	5 I	6 R	7 S	8 H	9 O	10 R
11 B	12 R	13 E	14 T	15 R	16 Y	17 T	18 O	19 T	20 U
21 T	22 H	23 E	24 S	25 I	26 N	27 W	28 E	29 R	30 E
31 T	32 O	33 O	34 F	35 F	36 I	37 O	38 N	39 G	40 O
41 G	42 R	43 E	44 T	45 W	46 E	47 T	48 Y	49 E	50 N
51 Y	52 O	53 T	54 L	55 E	56 S	57 S	58 R	59 H	60 O
61 E	62 N	63 H	64 E	65 A	66 D	67 M	68 E	69 Y	70 A
71 A	72 B	73 L	74 E	75 G	76 R	77 O	78 W	79 L	80 S
81 O	82 U	83 C	84 H	85 A	86 I	87 R	88 A	89 U	90 R
91 B	92 Y	93 E	94 G	95 I	96 S	97 T	98 E	99 Y	100 E

IT IS BETTER TO GET THEM ALL CUT

C-13 TOPIC 1-d Prime and Composite Numbers Numbers Less than 100

PRIME TIME

Shade in each area that contains a prime number. Use a pencil so you can erase.



TOPIC 1-d: Prime and Composite Numbers: Numbers Less than 100

C-14

Why Did the Horse Eat With Its Mouth Open?

Write the prime factorization for each number. Find your answer in the adjacent answer list. Write the letter of the answer in each box containing the number of the exercise.

(1) 12 $2^2 \times 3$	(2) 20 $2^2 \times 5$	(3) 35 5×7	(U) $2 \times 3 \times 5$ (B) $2^2 \times 3$ (E) 5×7 (G) $2^2 \times 7$ (H) $2^2 \times 5$
(4) 36 $2^2 \times 3^2$	(5) 75 3×5^2	(6) 99 $3^2 \times 11$	(D) 3×5^2 (J) 2×3^2 (M) $3^2 \times 11$ (R) $2^2 \times 3^2$ (F) $2 \times 5 \times 11$
(7) 60 $2^2 \times 3 \times 5$	(8) 56 $2^3 \times 7$	(9) 26 2×13	(K) 23×5 (I) 2×13 (C) $2 \times 5 \times 7$ (L) $2^3 \times 7$ (S) $2^2 \times 3 \times 5$
(10) 81 3^4	(11) 100 $2^2 \times 5^2$	(12) 90 $2 \times 3^2 \times 5$	(A) $2^2 \times 5^2$ (O) 2×3^3 (N) 3^4 (T) $2 \times 3^2 \times 5$ (P) $2^3 \times 3 \times 5$

9	12	2	11	5	1	11	5	7	12	11	1	8	3	6	11	10	10	3	4	7
I	T	H	A	D	B	A	D	S	T	A	B	L	E	M	A	N	N	E	R	S

IT HAD BAD STABLE MANNERS

C-15 TOPIC 1-e: Prime Factorization

NOTE: Space is provided for students to draw factor trees for the first 9 exercises.

Why Did the Dog Have to Go to Court?

Write the prime factorization for each number. Find your answer in the answer list. Write the letter of the answer in each box containing the number of the exercise.

(1) 30 $2 \times 3 \times 5$	(2) 42 $2 \times 3 \times 7$	(3) 18 2×3^2	Answers 1 – 3: (Y) 22x5 (A) $2 \times 3 \times 5$ (T) 2×3^2 (C) 32x5 (I) $2 \times 3 \times 7$
(4) 50 2×5^2	(5) 24 $2^3 \times 3$	(6) 45 $3^2 \times 5$	Answers 4 – 6: (O) 32x5 (M) 22x5 (N) 2×5^2 (G) $2 \times 3 \times 5^2$ (E) $2^3 \times 3$
(7) 84 $2^2 \times 3 \times 7$	(8) 66 $2 \times 3 \times 11$	(9) 80 $2^4 \times 5$	Answers 7 – 9: (P) 23x11 (I) $2^2 \times 3 \times 7$ (T) $2 \times 3 \times 11$ (A) $2 \times 3^2 \times 7$ (C) $2^4 \times 5$

(10) 63 I
(11) 48 A
(12) 39 G
(13) 88 T
(14) 144 K

Answers 10 – 14:
(S) $2^3 \times 5$ (I) $3^2 \times 7$
(G) 3x13 (K) 24x32
(N) $3^2 \times 11$ (T) $2^3 \times 11$
(A) 24x3 (E) $2 \times 3 \times 7$

(15)
(16) 98 T
(17) 64 R
(18) 1
(19) 1,000 120 G

(T) 2×7^2 G $2^3 \times 3 \times 5$
(N) $2^4 \times 3$ B $2^3 \times 5^3$
(R) 2^6 (S) $2 \times 3^2 \times 7$
(L) $3^4 \times 5$ K $2 \times 5^2 \times 13$

Answers 15 – 19:
(T) 2×7^2 (G) $2^3 \times 3 \times 5$
(N) $2^4 \times 3$ (B) $2^3 \times 5^3$
(R) 2^6 (S) $2 \times 3^2 \times 7$
(L) $3^4 \times 5$ (K) $2 \times 5^2 \times 13$

10	3	15	6	8	11	19	1	17	14	7	98 T	4	12	16	2	64 R	18	1	1,000 B
I	T	G	O	T	A	B	A	R	K	I	N	G		T	I	C	K	E	T

IT GOT A BARKING TICKET

TOPIC 1-e: Prime Factorization C-16

HOW CAN YOU TELL IF A SHARK LIKES YOU?

Find the greatest common factor (GCF) for each pair of numbers. Write the letter next to the answer in the box containing the exercise number. If the answer has a ●, shade in the box instead of writing a letter in it.

(1) GCF of 14 and 21 7
(2) GCF of 10 and 12 2
(3) GCF of 15 and 25 5
(4) GCF of 6 and 15 3
(5) GCF of 36 and 27 9
(6) GCF of 22 and 33 11
(7) GCF of 60 and 20 20

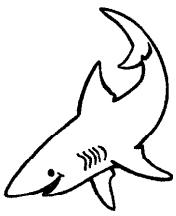
Answers 1 – 7:
(P) 1 (N) 8
(E) 2 ● 9
(I) 3 (T) 11
(A) 5 (L) 12
(O) 6 (E) 20
(S) 7 (R) 30

(8) GCF of 12 and 9 3
(9) GCF of 24 and 16 8
(10) GCF of 45 and 20 5
(11) GCF of 12 and 42 6
(12) GCF of 30 and 50 10
(13) GCF of 36 and 12 12
(14) GCF of 100 and 250 50

Answers 8 – 14:
(W) 1 (N) 9
(O) 3 (A) 10
● 5 (R) 12
(E) 6 ● 15
(L) 7 (C) 40
(H) 8 (T) 50

(15) GCF of 24 and 30 6
(16) GCF of 8 and 15 1
(17) GCF of 28 and 12 4
(18) GCF of 18 and 40 2
(19) GCF of 64 and 16 16
(20) GCF of 30 and 75 15
(21) GCF of 180 and 54 18

Answers 15 – 21:
● 1 (A) 10
(T) 2 ● 12
(N) 4 (H) 15
(E) 6 (K) 16
(S) 7 (B) 18
(G) 9 (R) 24



9	15	5	14	12	19	7	1	16	3	17	8	6	20	2	13	10	21	4	18	11
H	E		T	A	K	E	S		A	N	O	T	H	E	R		B	I	T	E

C-17 TOPIC 1-f: Greatest Common Factor (GCF)

Why Did Igor Spend 10 Years Studying Geology?

Find the least common multiple (LCM) for each pair of numbers. Look for your answer in the set of boxes under the exercise. Write the letter of the exercise in the box containing the answer.

(T) LCM of 3 and 5 15
(E) LCM of 4 and 6 12
(A) LCM of 2 and 9 18
(O) LCM of 10 and 4 20
(H) LCM of 9 and 12 36
(E) LCM of 6 and 5 30
(B) LCM of 7 and 21 21
(W) LCM of 10 and 70 70
(D) LCM of 5 and 2 10
(E) LCM of 15 and 9 45
(T) LCM of 11 and 8 88
(N) LCM of 12 and 20 60

36	45	72	70	18	60	15	30	10	180	88	20	90	21	12
H	E		W	A	N	T	E	D		T	O		B	E

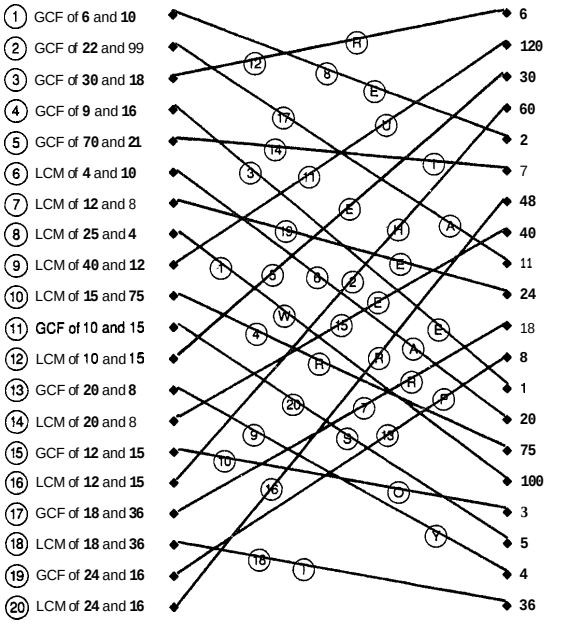
(S) LCM of 8 and 6 24
(A) LCM of 15 and 25 75
(O) LCM of 4 and 8 8
(I) LCM of 6 and 9 18
(K) LCM of 8 and 10 40
(A) LCM of 9 and 4 36
(B) LCM of 10 and 6 30
(R) LCM of 7 and 8 56
(G) LCM of 25 and 10 50
(C) LCM of 45 and 15 45
(R) LCM of 30 and 40 120
(T) LCM of 24 and 9 72

75	180	30	18	50	48	120	8	45	40	150	24	72	36	56
A		B	I	G		R	O	C	K		S	T	A	R

TOPIC 1-g: Least Common Multiple (LCM) C-18

What Did Captain Hook Say in the Bakery?

Find the GCF or LCM for each exercise. Draw a straight line connecting the square by the exercise to the square by its answer. The line will cross a number and a letter. Write the letter in the matching numbered box at the bottom of the page.



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
W	H	E	R	E	A	R	E	Y	O	U	R	P	I	E	R	A	T	E	S

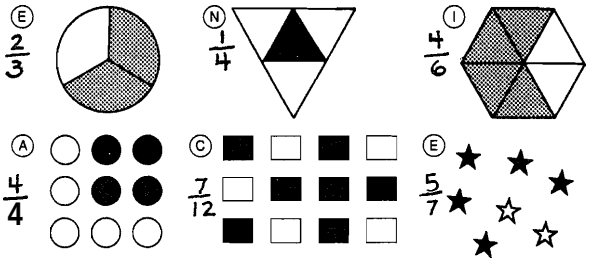
WHERE ARE YOUR PIE RATES

TOPIC 1-h: Review: GCF and LCM

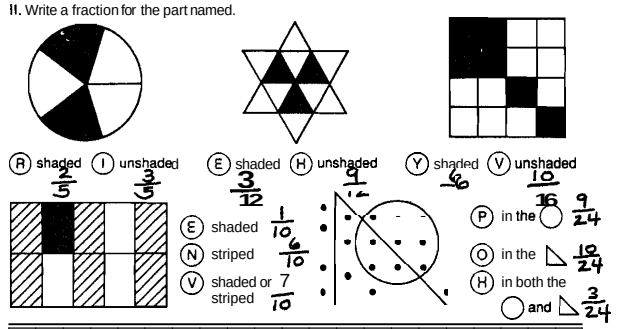
How Do You Get 27 Kids to Carve a Statue?

Find your answer for each exercise at the bottom of the page and write the letter of the exercise above it. (Do not reduce answers.)

I. Write a fraction for the part that is shaded.



II. Write a fraction for the part named.

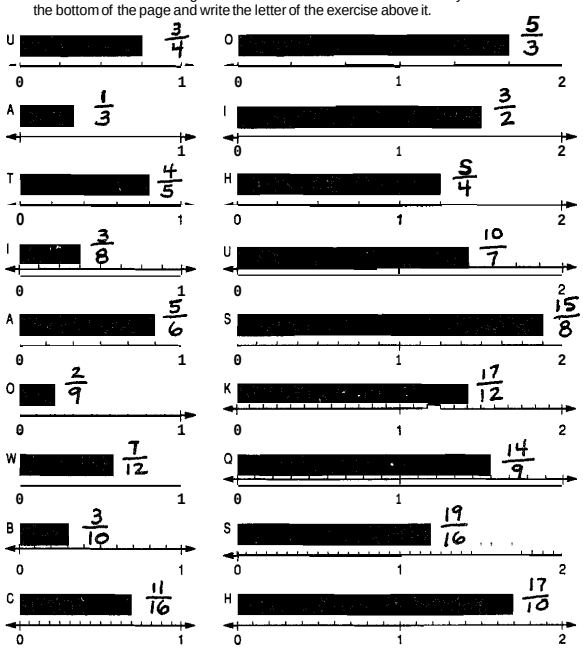


H	A	Y	E		E	V	E	R	Y	O	N	E		C	H	I	P		I	N
9/12	4/9	10/16	5/7	7/24	2/3	7/10	1/10	2/5	6/16	24/4	1/4	3/12	5/16	7/12	3/24	4/6	9/24	5/10	3/5	6/10

TOPIC 2-a: Meaning of Fractions
Part of a Region or Set

What Did the Boy Snake Say to the Girl Snake?

Write a fraction for the length of the bar above each number line. Find your answer at the bottom of the page and write the letter of the exercise above it.

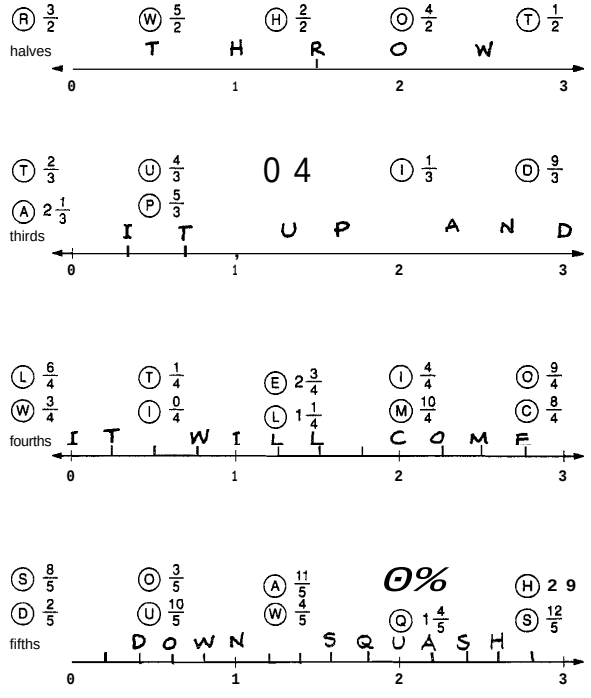


H	O	W		A	B	O	U	T		A		Q	U	I	C	K		H	I	S	S
5/4	5/3	7/12	9/10	5/6	3/10	2/9	10/7	4/5	7/16	1/3	3/13	14/9	3/4	3/8	11/16	17/12	5/8	17/10	3/2	15/8	19/16

TOPIC 2-b: Meaning of Fractions
A Length on the Number Line

How Do You Turn a Banana into a Vegetable?

Divide each number line as indicated. Then locate the given numbers. Write the letter of each exercise above the number line at the corresponding point.



TOPIC 2-c: Meaning of Fractions
A Point on the Number Line

NOTE: For Part I, you might have students also estimate the fraction that is not shaded.

What Is Rock 'N' Roll?

For each exercise, write >, <, or = in the ◯. Circle the appropriate number-letter. Write the letter in the matching numbered box at the bottom of the page.

		>	<	=			>	<	=
1	$\frac{3}{8} < \frac{1}{2}$	29-L	(10-H)	15-F	15	$\frac{5}{11} < \frac{1}{2}$	32-R	(27-I)	7-L
2	$\frac{5}{8} > \frac{1}{2}$	(19-A)	24-M	16-P	16	$\frac{6}{11} > \frac{1}{2}$	(23-T)	6-E	20-U
3	$\frac{2}{4} = \frac{1}{2}$	21-U	4-G	(31-I)	17	$\frac{9}{16} > \frac{1}{2}$	(14-A)	22-S	26-M
4	$\frac{5}{12} < \frac{1}{2}$	29-V	(15-T)	8-K	18	$\frac{4}{9} < \frac{1}{2}$	28-R	(34-O)	2-T
5	$\frac{7}{12} > \frac{1}{2}$	(5-N)	16-B	33-E	19	$\frac{51}{100} > \frac{1}{2}$	(18-H)	9-N	3-C
6	$\frac{5}{10} = \frac{1}{2}$	1-S	21-R	(24-O)	20	$\frac{1}{2} > \frac{1}{3}$	(6-D)	26-F	11-E
7	$\frac{3}{5} > \frac{1}{2}$	(29-E)	13-V	25-W	21	$\frac{1}{2} = \frac{8}{16}$	7-M	30-R	(12-T)
8	$\frac{2}{5} < \frac{1}{2}$	23-M	(4-A)	18-D	22	$\frac{1}{2} > \frac{7}{15}$	(32-N)	20-J	2-L
9	$\frac{3}{7} < \frac{1}{2}$	12-P	(16-S)	27-K	23	$\frac{1}{2} < \frac{8}{15}$	9-P	(28-T)	17-S
10	$\frac{4}{7} > \frac{1}{2}$	(8-I)	14-U	20-N	24	$\frac{1}{2} = \frac{25}{50}$	3-F	25-A	(9-C)
11	$\frac{3}{6} = \frac{1}{2}$	34-B	3-G	(21-D)	25	$\frac{1}{2} < \frac{7}{10}$	11-S	(20-R)	26-V
12	$\frac{11}{20} > \frac{1}{2}$	(33-T)	6-F	13-L	26	$\frac{1}{2} < \frac{2}{3}$	30-N	(3-S)	7-R
13	$\frac{5}{9} > \frac{1}{2}$	(1-A)	18-P	28-N	27	$\frac{1}{2} = \frac{16}{32}$	2-T	17-O	(26-B)
14	$\frac{7}{16} < \frac{1}{2}$	9-G	(13-H)	12-C	28	$\frac{1}{2} = \frac{50}{100}$	25-P	22-Y	(7-W)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A		S	A	N	D	W	I	C	H		T	H	A	T	'S	

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
H	A	R	D		T	O		B	I	T	E		I	N	T	O

C-23 TOPIC 2-d: Comparing Fractions to $\frac{1}{2}$

What Did the Mermaid Do on Saturday Night?

For each exercise, circle the best choice. Write the letter next to your answer in the box containing the exercise number.

I. Circle the fraction that tells about how much of each bar is shaded.

1. (L) $\frac{1}{10}$ **(T) $\frac{7}{8}$** (A) $\frac{4}{9}$
2. (Y) $\frac{5}{6}$ (K) $\frac{2}{15}$ **(E) $\frac{6}{11}$**
3. (N) $\frac{9}{20}$ **(O) $\frac{2}{17}$** (V) $\frac{4}{7}$
4. **(H) $\frac{7}{16}$** (I) $\frac{1}{5}$ (B) $\frac{11}{14}$
5. (R) $\frac{7}{10}$ (P) $\frac{10}{21}$ **(S) $\frac{1}{9}$**
6. (G) $\frac{3}{7}$ (F) $\frac{3}{19}$ **(E) $\frac{11}{13}$**
7. (U) $\frac{7}{15}$ **(I) $\frac{3}{14}$** (M) $\frac{3}{5}$
8. (J) $\frac{1}{8}$ (D) $\frac{4}{9}$ **(T) $\frac{14}{17}$**
9. **(H) $\frac{7}{12}$** (A) $\frac{13}{16}$ (R) $\frac{3}{10}$

II. Circle the fraction that matches the description given.

10. Close to 0: (N) $\frac{3}{7}$ (Y) $\frac{17}{20}$ **(E) $\frac{1}{10}$**
11. Close to $\frac{1}{2}$: **(O) $\frac{8}{15}$** (C) $\frac{4}{5}$ (P) $\frac{3}{16}$
12. Close to 1: (K) $\frac{3}{8}$ **(W) $\frac{8}{9}$** (F) $\frac{7}{13}$
13. Close to 0: (O) $\frac{5}{9}$ **(E) $\frac{2}{13}$** (R) $\frac{17}{18}$
14. Close to $\frac{1}{2}$: (N) $\frac{2}{9}$ (S) $\frac{9}{10}$ **(T) $\frac{5}{11}$**
15. Close to 1: (T) $\frac{3}{5}$ **(H) $\frac{17}{20}$** (O) $\frac{7}{16}$
16. Close to 0: (R) $\frac{5}{12}$ (E) $\frac{9}{8}$ **(T) $\frac{7}{100}$**
17. Close to $\frac{1}{2}$: **(W) $\frac{9}{16}$** (K) $\frac{16}{9}$ (F) $\frac{2}{7}$
18. Close to 1: (N) $\frac{10}{17}$ (C) $\frac{1}{10}$ **(D) $\frac{13}{12}$**
19. Less than $\frac{1}{2}$: (G) $\frac{2}{3}$ **(N) $\frac{6}{14}$** (R) $\frac{9}{16}$
20. More than $\frac{1}{2}$: **(U) $\frac{13}{25}$** (L) $\frac{2}{5}$ (I) $\frac{49}{100}$
21. Less than 1: (M) $\frac{8}{7}$ (G) $\frac{20}{19}$ **(T) $\frac{19}{20}$**

5	15	10		17	2	19	8		3	20	14		12	7	16	4		1	9	13		21	11	18	6
S	H	E		W	E	N	T		O	U	T		W	I	T	H		T	H	E		T	I	D	E

TOPIC 2-e Fractions Close to 1, 0, and $\frac{1}{2}$ C-24

Why Is Tuesday the Favorite Day of Math Teachers?

For each exercise, write the missing number. Find your answer in the set of boxes under the exercise. Write the letter of the exercise in the box containing the answer.

IT IS THE ONLY DAY THAT WAS NAMED AFTER A NUMBER

C-25 TOPIC 2-f Equivalent Fractions

What Did the Doctor Say to the Guy Who Thought He Was a Wigwam One Day and a Tepee the Next?

Circle one fraction in each set. Notice the letter above it. Write this letter in the box at the bottom of the page that contains the exercise number.

I. Circle the fraction that is equivalent to the first fraction in the set.

1. $\frac{1}{3}$: G $\frac{2}{9}$, **T $\frac{4}{12}$**, V $\frac{5}{18}$
2. $\frac{2}{5}$: I $\frac{6}{12}$, P $\frac{18}{40}$, **O $\frac{14}{35}$**
3. $\frac{3}{4}$: F $\frac{9}{16}$, M $\frac{21}{32}$, **E $\frac{15}{20}$**
4. $\frac{5}{8}$: **A $\frac{30}{48}$**, W $\frac{20}{24}$, L $\frac{45}{64}$
5. $\frac{4}{9}$: K $\frac{2}{3}$, **S $\frac{12}{27}$**, C $\frac{28}{72}$
6. $\frac{6}{7}$: B $\frac{7}{8}$, **E $\frac{48}{56}$**, R $\frac{24}{35}$
7. $\frac{7}{10}$: N $\frac{42}{50}$, F $\frac{6}{9}$, **U $\frac{70}{100}$**
8. $\frac{5}{12}$: **T $\frac{20}{48}$**, A $\frac{10}{36}$, O $\frac{30}{84}$
9. $\frac{1}{2}$: H $\frac{7}{15}$, T $\frac{16}{30}$, **E $\frac{12}{24}$**

II. Circle the fraction that is in lowest terms.

10. V $\frac{5}{10}$, I $\frac{6}{9}$, **U $\frac{3}{8}$**, M $\frac{2}{6}$
11. N $\frac{4}{8}$, **Y $\frac{2}{9}$**, L $\frac{15}{25}$, S $\frac{10}{14}$
12. G $\frac{6}{8}$, P $\frac{3}{9}$, **O $\frac{7}{12}$**, A $\frac{20}{45}$
13. D $\frac{4}{12}$, T $\frac{9}{15}$, L $\frac{2}{4}$, **R $\frac{5}{6}$**
14. P $\frac{12}{18}$, B $\frac{7}{14}$, N $\frac{9}{12}$, **S $\frac{8}{15}$**
15. **T $\frac{10}{21}$**, H $\frac{4}{32}$, F $\frac{6}{10}$, Y $\frac{15}{24}$
16. C $\frac{8}{22}$, **J $\frac{9}{16}$**, G $\frac{10}{35}$, W $\frac{3}{12}$
17. E $\frac{6}{15}$, I $\frac{7}{42}$, R $\frac{11}{33}$, **O $\frac{12}{25}$**
18. **N $\frac{4}{5}$**, D $\frac{12}{16}$, K $\frac{15}{36}$, X $\frac{2}{8}$

11	2	7	4	13	6	16	10	14	1	8	17	12	15	3	18	5	9
Y	O	U	A	R	E	J	U	S	T	T	O	O	T	E	N	S	E

YOU ARE JUST TOO TENSE

TOPIC 2-g: Lowest-Terms Fractions C-26

What Did George Washington Say To His Men On March 3?

Write each fraction in lowest terms. Find your answer in the adjacent answer columns. Write the letter of the exercise in the box containing the number of the answer.

Exercise	Answer
(W) $\frac{3}{9}$	$\frac{1}{3}$
(O) $\frac{2}{8}$	$\frac{1}{4}$
(L) $\frac{5}{10}$	$\frac{1}{2}$
(T) $\frac{4}{6}$	$\frac{2}{3}$
(H) $\frac{9}{12}$	$\frac{3}{4}$
(R) $\frac{10}{25}$	$\frac{2}{5}$

Answers: (12) $\frac{3}{5}$ (25) $\frac{1}{4}$ (5) $\frac{2}{5}$ (1) $\frac{2}{3}$ (10) $\frac{1}{3}$ (19) $\frac{5}{6}$ (22) $\frac{3}{4}$ (16) $\frac{1}{2}$

Exercise	Answer
(I) $\frac{3}{24}$	$\frac{1}{8}$
(T) $\frac{8}{18}$	$\frac{4}{9}$
(O) $\frac{9}{15}$	$\frac{3}{5}$
(R) $\frac{7}{21}$	$\frac{1}{3}$
(W) $\frac{10}{12}$	$\frac{5}{6}$
(L) $\frac{4}{8}$	$\frac{1}{2}$

Answers: (4) $\frac{3}{5}$ (17) $\frac{3}{4}$ (2) $\frac{2}{3}$ (15) $\frac{1}{2}$ (20) $\frac{1}{3}$ (27) $\frac{4}{9}$ (14) $\frac{1}{8}$ (8) $\frac{5}{6}$

Exercise	Answer
(R) $\frac{10}{16}$	$\frac{5}{8}$
(H) $\frac{15}{20}$	$\frac{3}{4}$
(E) $\frac{3}{30}$	$\frac{1}{10}$
(O) $\frac{12}{14}$	$\frac{6}{7}$
(M) $\frac{16}{20}$	$\frac{4}{5}$
(W) $\frac{6}{36}$	$\frac{1}{6}$

Answers: (11) $\frac{1}{10}$ (6) $\frac{5}{8}$ (9) $\frac{3}{8}$ (18) $\frac{4}{5}$ (13) $\frac{1}{6}$ (28) $\frac{3}{4}$ (2) $\frac{6}{7}$ (12) $\frac{2}{5}$

Exercise	Answer
(O) $\frac{20}{30}$	$\frac{2}{3}$
(C) $\frac{8}{16}$	$\frac{1}{2}$
(F) $\frac{10}{45}$	$\frac{2}{9}$
(M) $\frac{14}{20}$	$\frac{7}{10}$
(A) $\frac{15}{36}$	$\frac{5}{12}$
(R) $\frac{21}{56}$	$\frac{3}{8}$

Answers: (19) $\frac{5}{12}$ (24) $\frac{2}{9}$ (7) $\frac{2}{3}$ (23) $\frac{3}{5}$ (26) $\frac{3}{8}$ (3) $\frac{7}{10}$ (17) $\frac{2}{7}$ (21) $\frac{1}{2}$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
T	O	M	O	R	R	O	W		W	E		W	I	L	L		M	A	R	C	H		F	O	R	T	H

C-27 TOPIC 2-g: Lowest-Terms Fractions

Where can you hear MUSIC on an ocean liner?

Write each fraction in lowest terms. Find your answer at the right and mark the letter next to it. For each set of exercises, there is one extra answer. Write the letter of this **answer in the corresponding box at the bottom of the page.**

	Exercises			Answers			
1	$\frac{6}{9}=\frac{2}{3}$	$\frac{2}{10}=\frac{1}{5}$	$\frac{20}{35}=\frac{4}{7}$	(crossed) $\frac{1}{5}$	(crossed) $\frac{2}{3}$	(E) $\frac{2}{7}$	(crossed) $\frac{4}{7}$
2	$\frac{12}{16}=\frac{3}{4}$	$\frac{15}{18}=\frac{5}{6}$	$\frac{20}{90}=\frac{2}{9}$	(C) $\frac{4}{5}$	(crossed) $\frac{3}{4}$	(crossed) $\frac{2}{9}$	(crossed) $\frac{5}{6}$
3	$\frac{25}{75}=\frac{1}{3}$	$\frac{12}{32}=\frac{3}{8}$	$\frac{42}{49}=\frac{6}{7}$	(crossed) $\frac{6}{7}$	(crossed) $\frac{3}{8}$	(A) $\frac{3}{7}$	(crossed) $\frac{1}{3}$
4	$\frac{10}{24}=\frac{5}{12}$	$\frac{15}{27}=\frac{5}{9}$	$\frac{50}{100}=\frac{1}{2}$	(crossed) $\frac{1}{2}$	(crossed) $\frac{5}{12}$	(crossed) $\frac{5}{9}$	(E) $\frac{5}{8}$
5	$\frac{5}{40}=\frac{1}{8}$	$\frac{8}{30}=\frac{4}{15}$	$\frac{24}{36}=\frac{2}{3}$	(crossed) $\frac{1}{8}$	(T) $\frac{4}{9}$	(crossed) $\frac{4}{15}$	(crossed) $\frac{2}{3}$
6	$\frac{12}{30}=\frac{2}{5}$	$\frac{21}{36}=\frac{7}{12}$	$\frac{60}{80}=\frac{3}{4}$	(D) $\frac{7}{20}$	(crossed) $\frac{7}{12}$	(crossed) $\frac{2}{5}$	(crossed) $\frac{3}{4}$
7	$\frac{70}{100}=\frac{7}{10}$	$\frac{250}{1,000}=\frac{1}{4}$	$\frac{16}{24}=\frac{2}{3}$	(crossed) $\frac{7}{10}$	(crossed) $\frac{2}{3}$	(crossed) $\frac{1}{4}$	(H) $\frac{7}{8}$
8	$\frac{8}{28}=\frac{2}{7}$	$\frac{10}{60}=\frac{1}{6}$	$\frac{45}{100}=\frac{9}{20}$	(crossed) $\frac{1}{6}$	(K) $\frac{2}{5}$	(crossed) $\frac{9}{20}$	(crossed) $\frac{2}{7}$
9	$\frac{75}{100}=\frac{3}{4}$	$\frac{8}{36}=\frac{2}{9}$	$\frac{21}{24}=\frac{7}{8}$	(crossed) $\frac{7}{8}$	(T) $\frac{7}{12}$	(crossed) $\frac{3}{4}$	(crossed) $\frac{2}{9}$
10	$\frac{18}{36}=\frac{1}{2}$	$\frac{55}{75}=\frac{11}{15}$	$\frac{120}{150}=\frac{4}{5}$	(crossed) $\frac{4}{5}$	(crossed) $\frac{11}{15}$	(E) $\frac{2}{3}$	(crossed) $\frac{1}{2}$

11
40 minutes is what fraction of an hour? $\frac{2}{3}$
3 inches is what fraction of a foot? $\frac{1}{4}$
10 ounces is what fraction of a pound? $\frac{5}{8}$
Answers: (crossed) $\frac{1}{4}$, (P) $\frac{3}{5}$, (crossed) $\frac{2}{3}$, (crossed) $\frac{5}{8}$

5	7	1	9	3	11	4	6	10	2	8
T	H	E	T	A	P	E	D	E	C	K

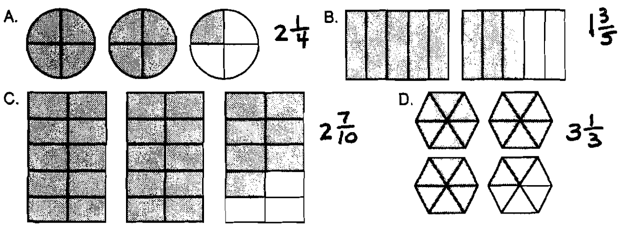
THE TAPE DECK

TOPIC 2-g: Lowest-Terms Fractions C-28

What Is the World's Most Musical Fish?

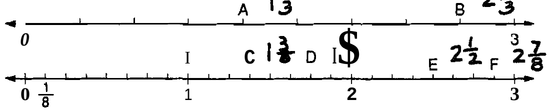
Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

1. Write a mixed number with the fraction in lowest terms for each shaded region.



A. $2\frac{1}{4}$ B. $1\frac{3}{5}$ C. $2\frac{7}{10}$ D. $3\frac{1}{3}$

2. Write a mixed number with the fraction in lowest terms for each lenered point.



3. Write each quotient as a mixed number with the fraction in lowest terms.

A. 25 ÷ 6 $4\frac{1}{6}$ B. 19 ÷ 7 $2\frac{5}{7}$ C 34 − 10 $3\frac{2}{5}$

D. 50 ÷ 9 $5\frac{5}{9}$ E. 22 ÷ 12 $1\frac{5}{6}$ F 90 ÷ 20 $4\frac{1}{2}$

G. A table is 39 inches wide. Express this measurement in feet. $3\frac{1}{4}$ ft

H. Smedley ran 440 yards in 78 seconds. Express this time in minutes. $1\frac{3}{10}$ min

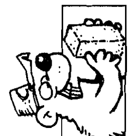
SC	AL	TH	AT	IM	ST	EP	ET	FR	IA	LS	EE
$2\frac{1}{2}$ (crossed)	$2\frac{5}{7}$ (crossed)	$4\frac{2}{3}$	$4\frac{1}{2}$ (crossed)	$2\frac{1}{4}$ (crossed)	$1\frac{3}{8}$ (crossed)	$1\frac{1}{5}$	$1\frac{3}{10}$ (crossed)	$2\frac{7}{8}$ (crossed)	$1\frac{6}{7}$	$3\frac{2}{5}$ (crossed)	$3\frac{1}{3}$ (crossed)
NO	**TE**	**SO**	**TU**	**BA**	**RN**	**UP**	**FU**	**NA**	**ME**	**SO**	**NG**
$3\frac{5}{6}$	$3\frac{3}{4}$ (crossed)	$2\frac{7}{10}$ (crossed)	$2\frac{1}{6}$	$1\frac{5}{6}$ (crossed)	$1\frac{1}{3}$ (crossed)	$1\frac{3}{5}$ (crossed)	$5\frac{5}{9}$ (crossed)	$2\frac{4}{9}$	$4\frac{1}{6}$ (crossed)	$1\frac{1}{4}$ (crossed)	$2\frac{2}{3}$ (crossed)

T	H	E	P	I	A	N	O	T	U	N	A

THE PIANO TUNA * It knows its scales.

C-29 TOPIC 2-h Meaning of Mixed Numbers

What Is the Difference Between a 16-Ounce Brick and a Carpenter?



Do each exercise and find your answer in the set of boxes under it. Write the letter of the exercise in the box containing the answer.

I. Write each improper fraction either as a mixed number with the fraction in lowest terms or as a whole numbe

(S) $\frac{9}{4}$ $2\frac{1}{4}$ (A) $\frac{18}{5}$ $3\frac{3}{5}$ (E) $\frac{15}{8}$ $1\frac{7}{8}$ (O) $\frac{31}{6}$ $5\frac{1}{6}$ (D) $\frac{6}{4}$ $1\frac{1}{2}$ (N) $\frac{12}{9}$ $1\frac{1}{3}$

(G) $\frac{14}{8}$ $1\frac{3}{4}$ (D) $2\frac{2}{3}$ (A) $\frac{48}{10}$ $4\frac{4}{5}$ (N) $\frac{20}{12}$ $1\frac{2}{3}$ (O) $\frac{28}{7}$ 4 (I) $\frac{27}{3}$ 9

(U) $\frac{40}{11}$ $3\frac{7}{11}$ (E) $\frac{44}{24}$ $1\frac{5}{6}$ (W) $\frac{73}{10}$ $7\frac{3}{10}$ (N) $\frac{26}{16}$ $1\frac{5}{8}$ (H) $\frac{45}{15}$ 3 (P) $\frac{100}{100}$ 1

4	$1\frac{1}{3}$	$1\frac{5}{6}$	$3\frac{4}{11}$	$7\frac{3}{10}$	$1\frac{7}{8}$	9	$1\frac{3}{4}$	3	$2\frac{1}{4}$	$1\frac{1}{8}$	$4\frac{4}{5}$	$7\frac{9}{10}$	1	$5\frac{1}{6}$	$3\frac{7}{11}$	$1\frac{5}{8}$	$1\frac{1}{2}$	$4\frac{1}{5}$	$3\frac{3}{5}$	$1\frac{2}{3}$	$2\frac{2}{3}$
O	N	E		W	E	I	G	H	S		A		P	O	U	N	D		A	N	D

II. Write each mixed number as an improper fraction.

(H) $2\frac{2}{3}$ $\frac{8}{3}$ (A) $4\frac{1}{2}$ $\frac{9}{2}$ (T) $1\frac{7}{10}$ $\frac{17}{10}$ (O) $3\frac{1}{7}$ $\frac{22}{7}$ (E) $7\frac{2}{5}$ $\frac{37}{5}$ (S) $4\frac{5}{6}$ $\frac{29}{6}$

(T) $2\frac{3}{8}$ $\frac{19}{8}$ (D) $5\frac{5}{9}$ $\frac{50}{9}$ (E) $1\frac{7}{12}$ $\frac{19}{12}$ (H) $3\frac{1}{4}$ $\frac{13}{4}$ (Y) $4\frac{3}{16}$ $\frac{67}{16}$ (R) $10\frac{8}{15}$ $\frac{158}{15}$

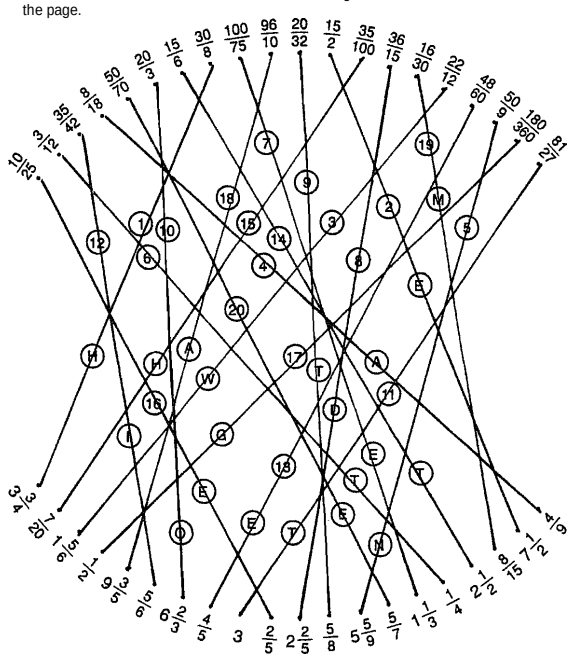
(U) $2\frac{11}{24}$ $\frac{59}{24}$ (O) $1\frac{5}{7}$ $\frac{12}{7}$ (P) $9\frac{3}{4}$ $\frac{39}{4}$ (A) $4\frac{3}{5}$ $\frac{23}{5}$ (N) $33\frac{1}{3}$ $\frac{100}{3}$ (W) $17\frac{1}{2}$ $\frac{35}{2}$

$\frac{44}{9}$	$\frac{17}{10}$	$\frac{13}{4}$	$\frac{37}{5}$	$\frac{54}{24}$	$\frac{12}{7}$	$\frac{19}{8}$	$\frac{8}{3}$	$\frac{19}{12}$	$\frac{158}{15}$	$\frac{79}{16}$	$\frac{39}{4}$	$\frac{22}{7}$	$\frac{59}{24}$	$\frac{100}{3}$	$\frac{50}{9}$	$\frac{29}{6}$	$\frac{35}{4}$	$\frac{9}{2}$	$\frac{35}{2}$	$\frac{23}{5}$	$\frac{67}{16}$
	T	H	E		O	T	H	E	R		P	O	U	N	D	S		A	W	A	Y

TOPIC 2-i Mixed Numbers and Improper Fractions C-30

Why Did the Football Coach Send in a Bunch of Second-String Players?

Simplify each fraction on the top curve and find your answer on the bottom curve. Draw a straight line connecting each exercise to its answer. The line will cross a number and a letter. Write the letter in the matching numbered box at the bottom of the page.



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
H	E	W	A	N	T	E	D	T	O	T	I	E	T	H	E	G	A	M	E

HE WANTED TO TIE THE GAME

TOPIC 2-j: Review: Simplifying Proper and Improper Fractions

NOTE: This is an excellent context for introducing the idea of changing 2 fractions to equivalent fractions with the same denominator, a skill students will need for adding and subtracting fractions.

What Happens If You Watch TV All Day?

For each exercise, write the missing **numerator(s).** Then compare the fractions. Write > or < in each ◯.

Circle the letter in the corresponding column and write this letter in the box containing the exercise number.

				>	<
1	$\frac{2}{3} = \frac{8}{12}$	$\frac{3}{4} = \frac{9}{12}$	$\frac{2}{3} < \frac{3}{4}$	R	E
2	$\frac{1}{4} = \frac{5}{20}$	$\frac{2}{5} = \frac{8}{20}$	$\frac{1}{4} < \frac{2}{5}$	A	O
3	$\frac{5}{6} = \frac{15}{18}$	$\frac{7}{9} = \frac{14}{18}$	$\frac{5}{6} > \frac{7}{9}$	T	F
4	$\frac{5}{8} = \frac{15}{24}$	$\frac{2}{3} = \frac{16}{24}$	$\frac{5}{8} < \frac{2}{3}$	V	C
5	$\frac{2}{15} = \frac{4}{30}$	$\frac{1}{10} = \frac{3}{30}$	$\frac{2}{15} > \frac{1}{10}$	E	N
6	$\frac{3}{4} = \frac{12}{16}$		$\frac{3}{4} > \frac{11}{16}$	U	T
7	$\frac{5}{7} = \frac{15}{21}$		$\frac{5}{7} < \frac{17}{21}$	B	S
8	$\frac{2}{5} = \frac{10}{25}$		$\frac{2}{5} > \frac{9}{25}$	E	A
9	$\frac{7}{8} = \frac{14}{16}$		$\frac{7}{8} > \frac{13}{16}$	Y	F
10	$\frac{3}{4} = \frac{15}{20}$	$\frac{7}{10} = \frac{14}{20}$	$\frac{3}{4} > \frac{7}{10}$	K	H
11	$\frac{3}{8} = \frac{9}{24}$	$\frac{5}{12} = \frac{10}{24}$	$\frac{3}{8} < \frac{5}{12}$	D	G
12	$\frac{13}{15} = \frac{26}{30}$	$\frac{5}{6} = \frac{25}{30}$	$\frac{13}{15} > \frac{5}{6}$	I	O
13	$\frac{2}{9} = \frac{8}{36}$		$\frac{2}{9} > \frac{7}{36}$	S	L

9	2	6	11	8	3	13	1	5	7	12	4	10
Y	O	U	G	E	T	S	E	E	S	I	C	K

YOU GET SEE SICK

TOPIC 2-k Comparing and Ordering Fractions

NOTE: Space is provided for students to write equivalent fractions.

BOOKS NEVER WRITTEN

Escape to the Forest by L U C I N D A (1 3 9 1 7 6 8 1 5 7) W O O D S (2 3 3 1 5 10)

End of the Semester by (17) M Y R A (14 1 16 7) P O R T (11 3 16 5)

Stunt Driving for Fun by (4) R E X (12) C A R R S (17 7 16 16 10)

ABOVE ARE THE TITLES OF THREE "BOOKS NEVER WRITTEN." TO DECODE THE NAMES OF THEIR AUTHORS:

For each exercise, compare the fractions or mixed numbers. Write > or < in each ◯. Circle the letter above the LARGER number. Write this letter above the exercise number each time it appears in the code.

1. (Y) G — $\frac{2}{3} > \frac{3}{5}$
2. K (W) — $\frac{1}{4} < \frac{2}{7}$
3. (O) S — $\frac{5}{6} > \frac{7}{10}$
4. (E) M — $\frac{1}{3} > \frac{2}{9}$
5. D (I) — $\frac{5}{16} < \frac{3}{8}$
6. (I) R — $\frac{7}{10} > \frac{5}{8}$
7. (A) L — $\frac{5}{8} > \frac{7}{12}$
8. H (N) — $\frac{1}{6} < \frac{7}{30}$
9. (U) P — $3\frac{6}{7} > 3\frac{9}{10}$
10. V (S) — $2\frac{3}{4} < 2\frac{5}{6}$
11. J (P) — $5\frac{1}{3} < 5\frac{3}{8}$
12. Z — $1\frac{1}{4} > 1\frac{5}{32}$
13. (E) G — $4\frac{7}{9} > 4\frac{3}{4}$
14. A (B) — $7\frac{5}{12} > 7\frac{2}{5}$
15. H (D) — $2\frac{1}{2} < 2\frac{4}{7}$

16. Which package is heavier:
   (R) One that weighs $1\frac{3}{4}$ pounds; or
   (F) One that weighs $1\frac{5}{8}$ pounds?

17. Which insect is longer:
   (V) One that measures $\frac{3}{8}$ inch; or
   (C) One that measures $\frac{2}{5}$ inch?

TOPIC 2-k Comparing and Ordering Fractions

Why Was the Zoo Worker Fired for Feeding the Monkeys?

Do each exercise and find your answer to the right. Write the letter of the answer in the box containing the number of the exercise. If the answer has a ●, shade in the box instead of writing a letter in it.

I Write each fraction in lowest terms.

(2) $\frac{8}{18} \frac{4}{9}$ (3) $\frac{25}{40} \frac{5}{8}$ (4) $\frac{12}{36} \frac{1}{3}$ (5) $\frac{30}{100} \frac{3}{10}$ (6) $\frac{16}{20} \frac{4}{5}$ (8) $\frac{15}{48} \frac{5}{16}$

Answers					
	O $\frac{4}{5}$	E $\frac{4}{9}$			
C $\frac{2}{5}$	H $\frac{5}{8}$	F $\frac{3}{8}$			
T $\frac{3}{4}$	I $\frac{3}{10}$	E $\frac{5}{16}$			
● $\frac{1}{2}$	P $\frac{2}{3}$	● $\frac{1}{3}$			

II. Write each improper fraction as a mixed number and each mixed number as an improper fraction.

(9) $\frac{23}{5} 4\frac{3}{5}$ (10) $\frac{18}{8} 2\frac{1}{4}$ (11) $\frac{20}{12} 1\frac{2}{3}$ (12) $\frac{45}{18} 2\frac{1}{2}$ (13) $3\frac{3}{4} \frac{15}{4}$ (14) $8\frac{3}{10} \frac{83}{10}$ (15) $4\frac{7}{15} \frac{67}{15}$ (16) $1\frac{11}{12} \frac{23}{12}$

Answers					
L $\frac{20}{12}$	T $2\frac{1}{2}$				
● $\frac{83}{10}$	S $1\frac{2}{3}$	D $\frac{67}{15}$			
A $\frac{72}{15}$	O $\frac{23}{12}$	N $2\frac{5}{6}$			
H $4\frac{3}{5}$	E $\frac{15}{4}$	● $2\frac{1}{4}$			

III. Write a > or < in each ◯. Then choose the SMALLER fraction and find it among the answers.

(17) $\frac{2}{3} < \frac{7}{9}$ (18) $\frac{2}{5} > \frac{1}{3}$ (19) $\frac{1}{4} > \frac{2}{9}$ (20) $\frac{5}{8} > \frac{7}{12}$ (21) $\frac{2}{5} > \frac{3}{10}$ (22) $\frac{4}{7} > \frac{1}{2}$ (23) $\frac{5}{8} < \frac{11}{16}$ (24) $\frac{3}{10} > \frac{1}{4}$

Answers					
● $\frac{11}{16}$	M $\frac{7}{12}$				
F $\frac{1}{2}$	H $\frac{2}{3}$	L $\frac{5}{8}$			
● $\frac{2}{9}$	T $\frac{1}{4}$	E $\frac{1}{3}$			
S $\frac{7}{9}$	R $\frac{2}{5}$	N $\frac{3}{10}$			

3	13	10	22	8	15	19	1	17	2	20	4	24	6	14	12	9	18	7	23	5	16	21	11
H	E		F	E	D		T	H	E	M		T	O		T	H	E		L	I	O	N	S

TOPIC 2-l: Review: Simplifying and Comparing Fractions

What Did People Say About Mr. and Ms. Snuggle After They Camped for 99 Nights in a Row?

Estimate each sum. Under each exercise, circle the letter of the better choice. Write this letter in the box containing the number of the exercise.

① $\frac{1}{5} + \frac{3}{8}$
V greater than 1
(E) less than 1

② $\frac{7}{16} + \frac{1}{2}$
F greater than 1
(N) less than 1

③ $\frac{1}{2} + \frac{4}{7}$
greater than 1
R less than 1

④ $\frac{2}{3} + \frac{7}{12}$
(E) greater than 1
P less than 1

⑤ $\frac{3}{11} + \frac{4}{9}$
L greater than 1
(Y) less than 1

⑥ $\frac{5}{8} + \frac{1}{20}$
G greater than 1
(W) less than 1

⑦ $\frac{15}{16} + \frac{1}{3}$
(S) greater than 1
D less than 1

⑧ $\frac{2}{5} + \frac{9}{10}$
E greater than 1
(K) less than 1

⑨ $\frac{1}{12} + \frac{6}{11}$
(R) greater than 1
H less than 1

⑩ $\frac{3}{5} + \frac{4}{9}$
(R) about 1
N about 2

⑪ $\frac{7}{8} + \frac{12}{13}$
U about 1
about 2

⑫ $\frac{8}{15} + \frac{3}{7}$
(O) about 1
Y about 2

⑬ $\frac{5}{6} + \frac{9}{10} + \frac{1}{4}$
A about 1
(E) about 2

⑭ $\frac{1}{3} + \frac{3}{8} + \frac{2}{11}$
(T) about 1
S about 2

⑮ $\frac{13}{16} + \frac{1}{10} + \frac{3}{25}$
(W) about 1
P about 2

⑯ $\frac{1}{4} + \frac{3}{11}$
(I) about $\frac{1}{2}$
A about 1
O about $1\frac{1}{2}$

⑰ $\frac{17}{18} + \frac{2}{5} + \frac{4}{15}$
R about $\frac{1}{2}$
S about 1
(N) about $1\frac{1}{2}$

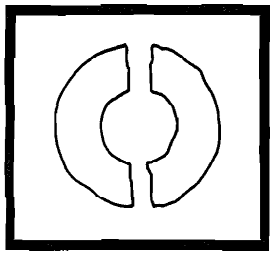
⑱ $\frac{3}{7} + \frac{7}{16} + \frac{2}{13}$
S about $\frac{1}{2}$
(T) about 1
G about $1\frac{1}{2}$

3	9	13	5		15	1	10	8		18	6	12		16	2		14	4	17	11	7
T	H	E	Y		W	E	R	E		T	W	O		I	N		T	E	N	T	S

C-35 TOPIC 3-a: Estimating Sums of Fractions

LAW OF THE DONUT

What Famous Rule of Donuts Is Illustrated by This Picture?



DIRECTIONS:
Do each exercise below. Find your answer in the code and write the letter of the exercise above it.

Law of the Donut:

T	W	O		H	A	L	V	E	S	
4	$2\frac{2}{5}$	$1\frac{2}{3}$	$1\frac{2}{9}$	$\frac{3}{10}$	$2\frac{1}{3}$	$\frac{3}{4}$	$1\frac{1}{4}$	$2\frac{3}{7}$	$1\frac{4}{5}$	$1\frac{3}{4}$
M	A	K	E		A		H	O	L	E
$2\frac{1}{2}$	2	$1\frac{5}{9}$	$\frac{1}{2}$	$1\frac{5}{8}$	2	1	$\frac{3}{5}$	$1\frac{1}{2}$	$1\frac{3}{8}$	$1\frac{1}{6}$

(E) $\frac{7}{9} - \frac{3}{8} = \frac{1}{2}$
(O) $\frac{9}{4} - \frac{3}{4} = 1\frac{1}{2}$
(W) $\frac{7}{10} + \frac{17}{10} = 2\frac{2}{5}$
(E) $\frac{9}{7} + \frac{9}{7} + \frac{5}{7} = 2\frac{3}{7}$

(A) $\frac{2}{3} + \frac{5}{3} = 2\frac{1}{3}$
(A) $\frac{1}{9} + \frac{5}{9} = \frac{2}{3}$
(L) $\frac{15}{16} - \frac{3}{16} = \frac{3}{4}$
(O) $\frac{8}{15} + \frac{4}{15} + \frac{13}{15} = 1\frac{2}{3}$

(S) $\frac{6}{5} + \frac{3}{5} = 1\frac{4}{5}$
(E) $\frac{19}{12} - \frac{5}{12} = 1\frac{1}{6}$
(A) $\frac{13}{6} - \frac{1}{6} = 2$
(M) $\frac{5}{12} + \frac{11}{12} + \frac{14}{12} = 2\frac{1}{2}$

(H) $\frac{9}{20} - \frac{1}{20} = \frac{3}{10}$
(K) $\frac{16}{9} - \frac{2}{9} = 1\frac{5}{9}$
(T) $\frac{5}{2} + \frac{3}{2} = 4$
(H) $\frac{67}{100} - \frac{7}{100} = \frac{3}{5}$

(V) Rugged Carpet Company installed $\frac{3}{8}$-inch carpet over $\frac{3}{8}$-inch padding. What was the combined thickness? $\frac{3}{4}$ in.

(L) Bert walked $\frac{9}{10}$ mile to Ernie's house. Then Bert and Ernie walked $\frac{7}{10}$ mile to the park. How far did Bert walk altogether? $1\frac{3}{5}$ mi

TOPIC 3.b Adding and Subtracting Fractions Like Denominators C-36

NOTE: The least common denominator is given for each exercise. Depending on your students' skills, you may wish to delete some or all of these denominators.

Why Are Broken Clocks So Quiet?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

① $\frac{2}{3} = \frac{8}{12}$; $\frac{1}{4} = \frac{3}{12}$; $\frac{11}{12}$
② $\frac{2}{5} = \frac{6}{15}$; $\frac{1}{3} = \frac{5}{15}$; $\frac{11}{15}$
③ $\frac{1}{2} = \frac{4}{8}$; $\frac{3}{8} = \frac{3}{8}$; $\frac{7}{8}$
④ $\frac{2}{3} = \frac{4}{6}$; $\frac{1}{2} = \frac{3}{6}$; $1\frac{1}{6}$
⑤ $\frac{1}{2} = \frac{5}{10}$; $\frac{4}{5} = \frac{8}{10}$; $1\frac{3}{10}$
⑥ $\frac{3}{4} = \frac{6}{8}$; $\frac{5}{8} = \frac{5}{8}$; $1\frac{3}{8}$
⑦ $\frac{1}{3} = \frac{2}{6}$; $\frac{1}{6} = \frac{1}{6}$; $\frac{1}{2}$
⑧ $\frac{3}{5} = \frac{12}{20}$; $\frac{1}{4} = \frac{5}{20}$; $\frac{17}{20}$
⑨ $\frac{5}{6} = \frac{15}{18}$; $\frac{4}{9} = \frac{8}{18}$; $1\frac{5}{18}$
⑩ $\frac{2}{3} = \frac{16}{24}$; $\frac{3}{8} = \frac{9}{24}$; $1\frac{1}{24}$
⑪ $\frac{1}{2} = \frac{5}{10}$; $\frac{3}{10} = \frac{3}{10}$; $\frac{4}{5}$
⑫ $\frac{3}{4} = \frac{9}{12}$; $\frac{5}{6} = \frac{10}{12}$; $1\frac{7}{12}$
⑬ $\frac{4}{5} = \frac{8}{10}$; $\frac{7}{10} = \frac{7}{10}$; $1\frac{1}{2}$
⑭ $\frac{1}{3} = \frac{4}{12}$; $\frac{5}{12} = \frac{5}{12}$; $\frac{3}{4}$
⑮ $\frac{7}{8} = \frac{21}{24}$; $\frac{5}{6} = \frac{20}{24}$; $1\frac{17}{24}$
⑯ $\frac{2}{5} = \frac{16}{40}$; $\frac{3}{8} = \frac{15}{40}$; $\frac{31}{40}$

SO $\frac{1}{6}$	IT $\frac{17}{24}$	TH $1\frac{11}{18}$	ET $\frac{3}{8}$	IM $\frac{1}{15}$	IF $\frac{1}{5}$	EY $1\frac{1}{12}$	IX $\frac{5}{18}$	IT $\frac{3}{4}$	DO $1\frac{13}{24}$	OR $\frac{7}{8}$
BE $1\frac{1}{2}$	NT $\frac{13}{20}$	IN $1\frac{1}{24}$	TO $\frac{27}{40}$	AC 2	AN $\frac{11}{12}$	LO $\frac{31}{40}$	CK $1\frac{5}{24}$	UP $1\frac{7}{12}$	TI $\frac{9}{10}$	ME $\frac{17}{20}$

T	H	E	Y	D	O	N	T	T	O	C	K

THEY DON'T TOCK

C-37 TOPIC 3-c: Adding Fractions

Why Did Airhead Eat the Dollar He Brought to School?

Do each exercise and find your answer at the bottom of the page. Write the letter of the exercise in the box above the answer.

	(U) $\frac{5}{8} + \frac{1}{4} = \frac{7}{8}$		(W) $\frac{1}{4} + \frac{4}{5} = 1\frac{1}{20}$		(N) $\frac{5}{6} + \frac{3}{10} = 1\frac{2}{15}$									Y $\frac{13}{15}$
														N $\frac{4}{5}$
	(Y) $\frac{1}{5} + \frac{2}{3} = \frac{13}{15}$		(N) $\frac{1}{6} + \frac{4}{9} = \frac{11}{18}$		(W) $\frac{3}{4} + \frac{7}{12} = 1\frac{1}{3}$									O $\frac{11}{18}$
														M $\frac{9}{10}$
	(I) $\frac{1}{3} + \frac{4}{9} = \frac{7}{9}$		(S) $\frac{7}{16} + \frac{9}{16} = 1$		(L) $\frac{4}{15} + \frac{1}{3} = \frac{3}{5}$									H $1\frac{1}{12}$
														U $1\frac{2}{15}$
	(T) $\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$		(I) $\frac{3}{4} + \frac{2}{3} = 1\frac{5}{12}$		(E) $\frac{3}{10} + \frac{1}{2} = \frac{4}{5}$									N $1\frac{19}{24}$
														E $1\frac{7}{8}$
	(O) $\frac{2}{5} + \frac{1}{2} = \frac{9}{10}$		(H) $\frac{1}{2} + \frac{7}{8} = 1\frac{3}{8}$		(H) $\frac{1}{2} + \frac{1}{6} = \frac{2}{3}$									W $1\frac{5}{6}$
														A $1\frac{17}{20}$
	(S) $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$		(A) $\frac{1}{3} + \frac{5}{6} = 1\frac{1}{6}$		(C) $\frac{1}{8} + \frac{2}{3} = \frac{19}{24}$									S $1\frac{3}{4}$
														T $1\frac{13}{18}$

TOPIC 3-c: Adding Fractions C-38

What Do You Get When You...

1. Cross a **pig with a** centipede?

B	A	C	O	N		A	N	D		L	E	G	S
$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{13}{15}$	$1\frac{4}{15}$	$1\frac{7}{8}$	$\frac{3}{4}$	$1\frac{4}{5}$	$1\frac{1}{10}$	$\frac{7}{12}$	$1\frac{5}{8}$	$\frac{3}{5}$	$1\frac{1}{4}$	$1\frac{1}{12}$

2. Cross a zebra **with** an **ape** man?

T	A	R	Z	A	N		S	T	R	I	P	E	S
$\frac{7}{8}$	$\frac{3}{4}$	$1\frac{1}{16}$	$\frac{5}{6}$	$\frac{3}{4}$	$1\frac{4}{15}$	$\frac{23}{24}$	$1\frac{1}{12}$	$\frac{7}{8}$	$\frac{17}{18}$	$\frac{11}{20}$	$1\frac{1}{8}$	$\frac{3}{5}$	$1\frac{1}{12}$

3. Cross 3 songs with 12 hot fudge sundaes?

F	A	T		C	H	A	N	T	S
$1\frac{3}{14}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{13}{8}$	$\frac{7}{9}$	$1\frac{7}{24}$	$\frac{3}{4}$	$1\frac{4}{15}$	$\frac{7}{8}$	$1\frac{1}{12}$

Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(D) $\frac{1}{2} + \frac{3}{5} = 1\frac{1}{10}$ (C) $\frac{2}{3} + \frac{1}{9} = \frac{7}{9}$ (F) $\frac{5}{7} + \frac{1}{2} = 1\frac{3}{14}$ (E) $\frac{7}{15} + \frac{2}{15} = \frac{3}{5}$

(S) $\frac{1}{4} + \frac{5}{6} = 1\frac{7}{12}$ (O) $\frac{4}{5} + \frac{1}{3} = 1\frac{2}{15}$ (I) $\frac{3}{10} + \frac{1}{4} = \frac{11}{20}$ (H) $\frac{2}{3} + \frac{5}{8} = 1\frac{7}{24}$

(B) $\frac{3}{5} + \frac{9}{10} = 1\frac{1}{2}$ (R) $\frac{1}{6} + \frac{7}{9} = 1\frac{1}{3}$ (L) $\frac{7}{8} + \frac{3}{4} = 1\frac{5}{8}$ (Z) $\frac{3}{10} + \frac{8}{15} = \frac{5}{6}$

(P) $\frac{5}{24} + \frac{11}{24} + \frac{11}{24} = 1\frac{1}{8}$ (G) $\frac{2}{5} + \frac{3}{4} + \frac{1}{10} = 1\frac{1}{4}$ (N) $\frac{1}{2} + \frac{3}{5} + \frac{1}{6} = 1\frac{4}{15}$

(A) Jenny refinished a wooden table. She used $\frac{1}{3}$ can of varnish for a first coat, $\frac{1}{4}$ can for a second coat, and $\frac{1}{6}$ can for a third coat. What fraction of the can did she use in all? $\frac{3}{4}$

(T) A window is made using 2 panes of glass with an air space between them. Each pane of glass is $\frac{3}{16}$ inch thick, and the separation between panes is $\frac{1}{2}$ inch. How thick is the window? $\frac{7}{8}$ in.

LAST LINE

"VERY GOOD BUT PREFER STEAK!!

A careless zookeeper named Blake
Fell into a tropical lake
Said a fat alligator
A few moments later ...

To decode the last line of this limerick: Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(I) $\frac{2}{3} - \frac{3}{5} = \frac{1}{15}$ (P) $\frac{3}{4} - \frac{1}{6} = \frac{7}{12}$ (L) $\frac{5}{6} - \frac{3}{8} = \frac{11}{24}$ (A) $\frac{19}{20} - \frac{11}{20} = \frac{2}{5}$

(D) $\frac{7}{8} - \frac{1}{2} = \frac{3}{8}$ (B) $\frac{9}{10} - \frac{2}{5} = \frac{1}{2}$ (F) $\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$ (S) $\frac{1}{4} - \frac{1}{8} = \frac{1}{8}$

(Y) $\frac{1}{4} - \frac{1}{7} = \frac{3}{28}$ (U) $\frac{3}{100} - \frac{3}{10} = \frac{37}{100}$ (V) $\frac{3}{8} - \frac{3}{5} = \frac{11}{24}$

(G) $\left(\frac{2}{5} + \frac{1}{2}\right) - \frac{3}{10} = 1\frac{1}{24}$ (K) $\frac{5}{8} + \left(\frac{2}{3} - \frac{1}{4}\right) = 1\frac{7}{24}$ (O) $\frac{17}{16} - \left(\frac{3}{4} + \frac{1}{16}\right) = \frac{19}{16}$

(R) Razzle Shoes bought $\frac{1}{2}$ page ad in the *Times*. Dazzle Shoes bought two ads that were $\frac{1}{6}$ page each. How much more advertising did Razzle Shoes buy? $\frac{1}{6}$ page

(T) Jill made a sauce in cooking class. She used $\frac{1}{2}$ cup of milk, $\frac{2}{3}$ cup of cream, and $\frac{1}{4}$ cup of water. How much less water was used than milk and cream combined? $\frac{1}{12}$ c

NOTE: You can use Exercise O for a review of decimal place value.

Did You Hear About...

A THE	B KID	C WHO	D THOUGHT	E THAT	F MUSICAL	G INSTRUMENTS	H HAVE	I TEETH
J BECAUSE	K HIS	L MOTHER	M BOUGHT	N A	O NEW	P TUBA	Q TOOTHPASTE	?

Do each exercise and find your answer in one of the answer columns. Notice the word next to the answer. Write this word in the box containing the letter of the exercise.

(A) $\frac{1}{4} + \frac{3}{5} = \frac{17}{20}$ (B) $\frac{5}{6} - \frac{4}{9} = \frac{7}{18}$ (C) $\frac{9}{10} + \frac{1}{2} = 1\frac{2}{5}$ (D) $\frac{2}{3} - \frac{5}{12} = \frac{1}{4}$

(E) $\frac{3}{8} + \frac{9}{16} = \frac{15}{16}$ (F) $\frac{7}{10} - \frac{1}{5} = \frac{1}{2}$ (G) $\frac{1}{3} + \frac{7}{8} = 1\frac{5}{24}$ (H) $\frac{3}{4} - \frac{1}{10} = \frac{13}{20}$

(I) $\frac{1}{2} + \frac{2}{7} = 1\frac{11}{14}$ (J) $\frac{4}{5} - \frac{1}{6} = \frac{19}{30}$ (K) $\frac{9}{16} + \frac{15}{16} = 1\frac{1}{2}$ (L) $\frac{7}{10} - \frac{8}{15} = \frac{1}{6}$

(M) $\left(\frac{7}{8} - \frac{1}{4}\right) + \frac{1}{2} = 1\frac{1}{8}$ (N) $\frac{19}{20} - \left(\frac{1}{2} - \frac{3}{10}\right) = \frac{3}{4}$ (O) $\frac{1}{10} + \frac{1}{100} + \frac{1}{1{,}000} = \frac{111}{1{,}000}$

(P) A BigBurger has $\frac{1}{4}$ pound of meat. A SuperBurger has $\frac{1}{3}$ pound of meat. How much more meat is used for the SuperBurger? $\frac{1}{12}$ lb

(Q) Kent walked $\frac{3}{4}$ of a mile on Monday. On Tuesday, he walked $\frac{1}{8}$ of a mile less than on Monday. How far did he walk altogether? $1\frac{3}{8}$ mi

$1\frac{5}{24}$ INSTRUMENTS	$\frac{3}{24}$ BRUSH	$\frac{111}{1{,}000}$ NEW	$\frac{19}{30}$ BECAUSE	$\frac{3}{4}$ A	$\frac{17}{20}$ THE	$1\frac{5}{8}$ NEVER	$\frac{13}{20}$ HAVE	$\frac{1}{2}$ MUSICAL	$1\frac{1}{8}$ BOUGHT	$\frac{13}{14}$ EARS	$\frac{1}{4}$ THOUGHT

$1\frac{3}{8}$ TOOTHPASTE	$1\frac{2}{5}$ WHO	$\frac{1}{6}$ MOTHER	$\frac{2}{3}$ BIG	$\frac{11}{14}$ TEETH	$\frac{13}{30}$ WHEN	$\frac{7}{18}$ KID	$1\frac{1}{2}$ HIS	$\frac{15}{16}$ THAT	$\frac{3}{10}$ SHARP	$\frac{1}{12}$ TUBA	$1\frac{1}{24}$ SHOWS

Why Did the Boy Sheep Plunge Off a Cliff While Chasing the Girl Sheep?

For each exercise, write an estimate of the answer. On the number line under the exercise, find a point near your estimate. Write the letter of the exercise on the number line at that point.

(N) $3\frac{9}{10} + 2\frac{13}{16}$ 7 (E) $1\frac{1}{8} + \frac{11}{13}$ 2 (T) $2\frac{4}{9} + 5\frac{1}{2}$ 8

(E) $3\frac{11}{12} + 7\frac{3}{8}$ 11 (D) $5\frac{1}{3} - 1\frac{2}{7}$ 4 (H) $12\frac{5}{6} - 11\frac{8}{9}$ 1

(I) $1\frac{3}{4} + 3\frac{3}{16} + \frac{1}{9}$ 5 (S) $3\frac{7}{10} + 4\frac{1}{15} + 2\frac{2}{13}$ 10

(E) Betsy needed some fabric to make flags. She bought $4\frac{1}{8}$ yd of red fabric. $4\frac{2}{3}$ yd of white fabric, and $3\frac{1}{4}$ yd of blue fabric. About how much fabric did she buy altogether? 12 yd

(D) Diane went salmon fishing with her father. Diane caught a fish that weighed $16\frac{3}{8}$ lb. Her father caught one that weighed $10\frac{1}{16}$ lb. About how much heavipr was Diane's fish? 6 lb

H E D I D N'T S E E

0 1 2 3 4 5 6 7 8 9 10 11 12

(E) $12\frac{1}{5} + 8\frac{2}{11}$ 20 (T) $3\frac{5}{12} + 10\frac{4}{7}$ 14 (U) $7\frac{1}{6} + 15\frac{7}{9}$ 23

(N) $27\frac{7}{8} - 2\frac{4}{5}$ 25 (E) $20\frac{3}{10} - 4\frac{1}{3}$ 16 (W) $59\frac{9}{16} - 40\frac{1}{2}$ 19

(H) $9\frac{2}{3} + \frac{3}{20} + 5\frac{1}{4}$ 15 (T) $11\frac{6}{7} + (13\frac{1}{5} - 3\frac{1}{11})$ 22

(R) A plumber had a piece of pipe that was $27\frac{7}{8}$ in. long. He cut off a piece $3\frac{3}{4}$ in. long and used it to repair the sink. About how long was the remaining piece of pipe? 24 in.

(E) Mario is training for the track team. He ran $4\frac{1}{4}$ mi on Monday, $5\frac{9}{10}$ mi on Wednesday, and $7\frac{4}{5}$ mi on Friday. About how far did he run altogether on the three days? 18 mi

T H E E W E T U R N

13 14 15 16 17 18 19 20 21 22 23 24 25

Cryptic Quiz

1. What do you call a seafood that drives you home?

A ___ T A X I ___ C R A B
$13\frac{1}{3}$ $70\frac{9}{11}$ $12\frac{2}{3}$ $13\frac{1}{3}$ $10\frac{2}{3}$ $10\frac{1}{5}$ 23$ $45\frac{1}{6}$ $8\frac{2}{5}$ $13\frac{1}{3}$ $22\frac{1}{2}$

2. What does a skunk bring to church with him?

H I S ___ O W N ___ P E W
$90\frac{3}{10}$ $10\frac{1}{5}$ $84\frac{3}{4}$ $14\frac{2}{3}$ $71\frac{8}{11}$ $46\frac{1}{4}$ $8\frac{1}{3}$ $45\frac{2}{3}$ $10\frac{1}{2}$ 14 46$

3. What does an English setter use to buy food?

A ___ D O G ___ P O U N D
$13\frac{1}{3}$ 45$ $23\frac{5}{8}$ $71\frac{8}{11}$ 44$ $10\frac{4}{5}$ $10\frac{1}{2}$ $71\frac{8}{11}$ $7\frac{1}{2}$ $8\frac{1}{3}$ $23\frac{5}{8}$

Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(R) $4\frac{3}{5} + 3\frac{4}{5} = 8\frac{2}{5}$
(U) $1\frac{7}{8} + 5\frac{5}{8} = 7\frac{1}{2}$
(I) $7\frac{3}{10} + 2\frac{9}{10} = 10\frac{1}{5}$
(T) $3\frac{5}{6} + 8\frac{5}{6} = 12\frac{2}{3}$
(E) $9\frac{5}{13} + 4\frac{8}{13} = 14$

(N) $6\frac{5}{9} + 1\frac{7}{9} = 8\frac{1}{3}$
(B) $15\frac{1}{4} + 7\frac{1}{4} = 22\frac{1}{2}$
(H) $38\frac{17}{20} + 51\frac{9}{20} = 90\frac{3}{10}$
(O) $27\frac{5}{11} + 44\frac{3}{11} = 71\frac{8}{11}$
(S) $64\frac{13}{16} + 19\frac{15}{16} = 84\frac{3}{4}$

(X) $8\frac{11}{15}$ + i t l0 $
(G) $9\frac{5}{7} + 34\frac{6}{7}$ $44\frac{4}{7}$
(C) $15\frac{17}{24} + 29\frac{11}{24}$ $45\frac{1}{6}$

(D) $12\frac{1}{8}$ + 3f + $7\frac{5}{8}$ $23\frac{5}{8}$
(W) $20\frac{5}{12} + 8\frac{5}{12} + 17\frac{5}{12}$ $46\frac{1}{4}$

(A) Last week, minor league pitcher Lefty Spin pitched $7\frac{2}{3}$ innings on Monday and $5\frac{2}{3}$ innings on Friday. How many innings did he pitch last week altogether? $13\frac{1}{3}$

(P) It took Smedley $5\frac{3}{4}$ hours to climb to the top of a mountain. It took $3\frac{1}{4}$ hours to climb down. If he spent $1\frac{1}{2}$ hours at the top, how long did the climb take? $10\frac{1}{2}$ h

Which Italian Insects Most Often Fall in Love?

Do each exercise and find your answer at the bottom of the page. Cross out the letter above each correct answer. When you finish, the answer to the title question will remain.

(1) $3\frac{1}{2} + 4\frac{3}{10} = 7\frac{4}{5}$
(2) $7\frac{7}{9} + 1\frac{1}{3} = 9\frac{1}{9}$
(3) $4\frac{3}{4} + 9\frac{2}{5} = 14\frac{3}{20}$
(4) $2\frac{7}{8} + 5\frac{1}{2} = 8\frac{3}{8}$
(5) $1\frac{5}{6} + 6\frac{2}{3} = 8\frac{1}{2}$
(6) $10\frac{1}{4} + 7\frac{5}{12} = 17\frac{2}{3}$
(7) $3\frac{7}{9} + 8\frac{5}{6} = 12\frac{11}{18}$
(8) $34\frac{3}{5} + 29\frac{1}{3} = 63\frac{14}{15}$
(9) $71\frac{6}{7} + 6\frac{1}{2} = 78\frac{5}{14}$
(10) $18\frac{2}{3} + 18\frac{7}{12} = 37\frac{1}{4}$
(11) $8\frac{3}{8} + 5\frac{1}{5} = 13\frac{23}{40}$
(12) $50\frac{1}{6} + 11\frac{9}{10} = 62\frac{1}{15}$

(13) Ms. Baker's recipe for rye bread calls for $3\frac{1}{4}$ cups of white flour, $5\frac{2}{3}$ cups of rye flour, and $2\frac{1}{2}$ tablespoons of butter. How much flour is used altogether? $8\frac{11}{12}$ c

(14) The legs on a computer table are $23\frac{7}{8}$ inches high. The top is 24 inches wide, 48 inches long, and $1\frac{3}{16}$ inches thick. How high above the floor is the table surface? $25\frac{1}{16}$ in.

$62\frac{1}{15}$ $13\frac{7}{20}$ $9\frac{1}{9}$ $78\frac{5}{14}$ $8\frac{3}{4}$ $12\frac{11}{18}$ $25\frac{1}{16}$ $25\frac{1}{4}$ $8\frac{3}{8}$ $37\frac{1}{4}$ $78\frac{1}{4}$ $12\frac{11}{14}$ $7\frac{4}{5}$ $62\frac{4}{15}$ $63\frac{14}{15}$ $8\frac{11}{12}$ $8\frac{1}{2}$ $37\frac{5}{8}$ $13\frac{23}{40}$ $14\frac{3}{20}$ $17\frac{1}{4}$ $17\frac{2}{3}$

ROME ANTS

Knock Knock. Who's There?

1. Amanda. Amanda who? Amanda ... F I X ___ Y O U R ___ T V ___ S E T
$8\frac{3}{4}$ $19\frac{2}{5}$ $13\frac{5}{6}$ $8\frac{5}{8}$ $8\frac{3}{16}$ $13\frac{1}{3}$ $14\frac{1}{12}$ $7\frac{13}{16}$ $12\frac{2}{3}$ $6\frac{3}{5}$ $20\frac{3}{10}$ $7\frac{1}{2}$ $18\frac{1}{2}$ $14\frac{3}{4}$ $6\frac{3}{5}$

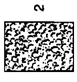
2. William. William who? William ... M E E T ___ M E ___ T O N I G H T
$8\frac{1}{4}$ $14\frac{3}{4}$ $14\frac{3}{4}$ $6\frac{3}{5}$ $19\frac{7}{10}$ $8\frac{1}{4}$ $14\frac{3}{4}$ $85\frac{17}{40}$ $6\frac{3}{5}$ $13\frac{1}{3}$ $12\frac{7}{24}$ $19\frac{2}{5}$ $56\frac{17}{18}$ $85\frac{11}{40}$ $6\frac{3}{5}$

To decode these knock-knock jokes: Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(Y) $3\frac{11}{16} + 4\frac{1}{2} = 8\frac{3}{16}$
(X) $4\frac{3}{10} + 9\frac{8}{15} = 13\frac{5}{6}$
(N) $9\frac{2}{3} + 2\frac{5}{8} = 12\frac{7}{24}$
(V) $19\frac{11}{20} + \frac{3}{4} = 20\frac{3}{10}$
(S) $13\frac{4}{5} + 4\frac{7}{10} = 18\frac{1}{2}$
(H) $54\frac{2}{5} + 30\frac{7}{8} = 85\frac{11}{40}$
(U) $5\frac{1}{4} + 8\frac{5}{6} = 14\frac{1}{12}$
(R) $5\frac{1}{4} + 2\frac{9}{16} = 7\frac{13}{16}$
(G) $37\frac{4}{9} + 19\frac{1}{2} = 56\frac{17}{18}$
(O) $3\frac{1}{6} + 2\frac{2}{3} + 7\frac{1}{2} = 13\frac{1}{3}$
(I) $10\frac{1}{5} + 8\frac{1}{2} + \frac{7}{10} = 19\frac{2}{5}$
(F) $4\frac{3}{8} + 1\frac{1}{6} + 3\frac{5}{24} = 8\frac{3}{4}$
(M) $1\frac{11}{12} + 6\frac{1}{3} = 8\frac{1}{4}$

(E) Juan's model locomotive is $7\frac{5}{8}$ in. long. His coal car is $6\frac{1}{4}$ in. long. When hooked together, there is a $\frac{7}{8}$-inch space between cars. What is the total length when the two cars are hooked together? $14\frac{3}{4}$ in.

(T) Every day Ms. Twinkle walks around a park near her house. The park is in the shape of a rectangle 2 mi long and $1\frac{3}{10}$ mi wide. How far does she walk? $6\frac{3}{5}$



What Do Mountains Breathe Through?

Do each exercise below. Find your answer in the answer columns and notice the letter next to it. Look for this **letter** in the string of letters near the **bottom** of the page and CROSS IT OUT each time it appears. When you finish, write the remaining letters in the rectangle at the bonom of the page.

(1) $9\frac{3}{4} - 4\frac{1}{2} = 5\frac{1}{4}$
(2) $16\frac{2}{3} - 7\frac{2}{5} = 9\frac{4}{15}$
(3) $8\frac{8}{9} - 5\frac{1}{6} = 3\frac{13}{18}$
(4) $20\frac{13}{16} - 3\frac{1}{4} = 17\frac{9}{16}$
(5) $13\frac{5}{6} - 6\frac{1}{3} = 7\frac{1}{2}$

(6) $51\frac{4}{5} - 8\frac{1}{2} = 43\frac{3}{10}$
(7) $25\frac{7}{8} - 12\frac{5}{12} = 13\frac{11}{24}$
(8) $37\frac{7}{10} - 28\frac{1}{6} = 9\frac{8}{15}$
(9) $67\frac{4}{7} - 17 = 50\frac{4}{7}$
(10) $4\frac{1}{5} - 4\frac{3}{100} = \frac{17}{100}$

(11) $18\frac{3}{4} - 5\frac{1}{6}$ $13\frac{7}{12}$
(12) $6\frac{2}{3} - 3\frac{4}{9}$ $3\frac{2}{9}$
(13) $94\frac{11}{15} - 49\frac{2}{5}$ $45\frac{1}{3}$

(14) When Arnold Schwarzenegger was named Mr. Universe, he had a chest measurement of $56\frac{7}{8}$ inches and a waist measurement of $32\frac{1}{4}$ inches. How much larger was his chest than his waist? $24\frac{5}{8}$ in.

(15) The maximum weight for a basketball is $22\frac{9}{10}$ ounces. For a baseball it is $5\frac{1}{2}$ ounces, and for a tennis ball it is $2\frac{1}{16}$ ounces. How much heavier is a maximum-weight basketball than a maximum-weight baseball? $17\frac{2}{5}$ oz

Answers	(V) $17\frac{7}{10}$	(Y) $9\frac{8}{15}$	(L) $45\frac{3}{8}$	(U) $13\frac{7}{12}$	(B) $3\frac{13}{18}$
(S) $34\frac{3}{8}$	(G) $5\frac{1}{4}$	(I) $24\frac{5}{8}$	(M) $43\frac{3}{10}$	(N) $3\frac{4}{9}$	(D) $50\frac{4}{7}$
(J) $13\frac{11}{24}$	(F) $3\frac{2}{9}$	(P) $\frac{17}{100}$	(C) $13\frac{1}{3}$	(W) $17\frac{9}{16}$	(O) $\frac{9}{100}$
(T) $17\frac{2}{5}$	(H) $7\frac{1}{2}$	(E) $17\frac{3}{16}$	(Z) $9\frac{4}{15}$	(A) $9\frac{7}{15}$	(R) $45\frac{1}{3}$

Y H M V J T O F B I L B D M C U M A T T N F O T T U S T T B E R

Answer to puzzle: VOLCANOSE

Why Does a Mermaid Wear Goggles?

Do each exercise mentally. Write your answer and then find it in the set of boxes under the exercise. Write the letter of the exercise in the box containing the answer.

C-49

TOPIC 3-i: Mental Math Addition and Subtraction

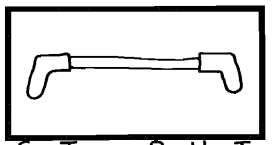
(S) $\frac{1}{4} + \frac{3}{4}$ 1
(O) $8\frac{7}{12} + 5\frac{5}{12}$ 14
(N) $5\frac{2}{3} + 5\frac{1}{3} + 3\frac{1}{2}$ $14\frac{1}{2}$
(E) $\frac{3}{8} + \frac{3}{8} + \frac{3}{8}$ $1\frac{1}{8}$
(T) $2\frac{1}{4} + 5\frac{3}{4}$ 8
(T) $6 + 2\frac{2}{3}$ $8\frac{2}{3}$
(E) $2\frac{3}{10} + 6\frac{1}{4} + 7\frac{7}{10}$ $16\frac{1}{4}$
(L) $\frac{3}{5} + \frac{3}{5} + 4$ $5\frac{1}{5}$
(A) $4\frac{5}{8} + \frac{3}{8}$ 5
(S) $10 + 3\frac{5}{6}$ $13\frac{5}{6}$
(I) $9\frac{1}{6} + 1\frac{5}{8} + 4\frac{5}{8}$ $15\frac{5}{8}$
(C) $\frac{4}{9} + \frac{7}{9} + 7$ $8\frac{2}{9}$
(H) $3\frac{2}{5} + 7\frac{3}{5}$ 11
(H) $4\frac{7}{16} + 9$ $13\frac{7}{16}$
(A) $\frac{3}{4} + 3\frac{11}{15} + 8\frac{4}{15}$ $12\frac{3}{4}$
(V) $\frac{1}{16} + \frac{3}{16} + \frac{5}{16} + \frac{7}{16}$ 1

$13\frac{5}{6}$	14	10	8	$13\frac{7}{16}$	5	$8\frac{2}{3}$	$13\frac{9}{16}$	1	11	$1\frac{1}{8}$	$5\frac{3}{5}$	$8\frac{2}{9}$	$12\frac{3}{4}$	$14\frac{1}{2}$	$8\frac{5}{9}$	$5\frac{1}{5}$	$15\frac{5}{8}$	1	$16\frac{1}{4}$
S	O		T	H	A	T		S	H	E		C	A	N		L	I	V	E

(E) $7 - \frac{1}{2}$ $6\frac{1}{2}$
(E) $6 - \frac{2}{3}$ $5\frac{1}{3}$
(A) $9 - \frac{2}{5}$ $8\frac{3}{5}$
(N) $4 - \frac{7}{10}$ $3\frac{3}{10}$
(T) $2 - \frac{1}{3}$ $1\frac{2}{3}$
(H) $5 - \frac{3}{4}$ $4\frac{1}{4}$
(E) $9 - \frac{5}{6}$ $8\frac{1}{6}$
(A) $4 - \frac{5}{16}$ $3\frac{11}{16}$
(C) $10 - \frac{1}{8}$ $9\frac{7}{8}$
(N) $8 - \frac{5}{8}$ $7\frac{3}{8}$
(A) $7 - 6\frac{1}{2}$ $\frac{1}{2}$
(N) $4\frac{1}{3} - \frac{2}{3}$ $3\frac{2}{3}$
(I) $13 - \frac{1}{5}$ $12\frac{4}{5}$
(O) $1 - \frac{9}{16}$ $\frac{7}{16}$
(D) $7 - 6\frac{4}{9}$ $\frac{5}{9}$
(S) $4\frac{3}{8} - \frac{7}{8}$ $3\frac{1}{2}$

$12\frac{4}{5}$	$7\frac{3}{8}$	$12\frac{2}{5}$	$1\frac{2}{3}$	$4\frac{1}{4}$	$6\frac{1}{2}$	$7\frac{7}{8}$	$\frac{7}{16}$	$9\frac{7}{8}$	$5\frac{1}{3}$	$\frac{1}{2}$	$3\frac{3}{10}$	9	$8\frac{3}{5}$	$3\frac{2}{3}$	$\frac{5}{9}$	$3\frac{7}{16}$	$3\frac{1}{2}$	$8\frac{1}{6}$	$3\frac{11}{16}$
I	N		T	H	E		O	C	E	A	N		A	N	D		S	E	A

What Is the Title of This Picture?



Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

CODED TITLE:

S	N	A	K	E		W	H	O		J	U	S	T		P	U	T
$2\frac{3}{5}$	$64\frac{4}{7}$	$1\frac{2}{5}$	$1\frac{1}{2}$	$4\frac{1}{2}$	$15\frac{3}{10}$	$6\frac{2}{3}$	$3\frac{2}{7}$	$7\frac{4}{5}$	$63\frac{2}{7}$	$11\frac{1}{2}$	$8\frac{12}{12}$	$2\frac{3}{5}$	$3\frac{2}{3}$	$11\frac{7}{8}$	$15\frac{3}{5}$	$8\frac{7}{12}$	$3\frac{2}{3}$
O	N		A		P	A	I	R		O	F		S	O	C	K	S
$7\frac{4}{5}$	$64\frac{4}{7}$	$3\frac{4}{7}$	$1\frac{2}{5}$	$7\frac{1}{5}$	$15\frac{3}{5}$	$1\frac{2}{5}$	$37\frac{5}{6}$	$6\frac{3}{4}$	$37\frac{1}{6}$	$7\frac{4}{5}$	$\frac{3}{5}$	$1\frac{4}{5}$	$2\frac{3}{5}$	$7\frac{4}{5}$	$4\frac{1}{3}$	$1\frac{1}{2}$	$2\frac{3}{5}$

C-47

TOPIC 3-j: Subtracting Mixed Numbers with Renaming Like Denominators

(E) $7\frac{1}{4} - 2\frac{3}{4} = 4\frac{1}{2}$
(T) $10\frac{1}{3} - 6\frac{2}{3} = 3\frac{2}{3}$
(R) $8\frac{5}{8} - 1\frac{7}{8} = 6\frac{3}{4}$
(A) $5\frac{1}{5} - 3\frac{4}{5} = 1\frac{2}{5}$
(C) $12\frac{1}{6} - 7\frac{5}{6} = 4\frac{1}{3}$
(H) $9 - 5\frac{5}{7} = 3\frac{2}{7}$
(U) $23 - 14\frac{5}{12} = 8\frac{7}{12}$
(F) $6\frac{3}{10} - 5\frac{7}{10} = \frac{3}{5}$
(W) $15\frac{2}{9} - 8\frac{5}{9} = 6\frac{2}{3}$
(J) $40\frac{3}{16} - 28\frac{11}{16} = 11\frac{1}{2}$
(N) $79\frac{2}{7} - 14\frac{5}{7} = 64\frac{4}{7}$
(I) $94\frac{5}{12} - 56\frac{7}{12} = 37\frac{5}{6}$
(O) $8\frac{2}{5} - \frac{3}{5} = 7\frac{4}{5}$
(P) $16\frac{9}{20} - \frac{17}{20} = 15\frac{3}{5}$

(K) Anne is building a fence using nails that are $2\frac{1}{4}$ in. long. She drove one of the nails through a board $\frac{3}{4}$ in. thick into a post 3 in. square. How far did the nail go into the post? $1\frac{1}{2}$ in.

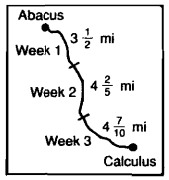
(S) Jose decided to walk the $9\frac{3}{10}$ mi from his house to the beach. In the first hour, he walked $3\frac{4}{5}$ mi. In the second hour, he walked $2\frac{9}{10}$ mi. How much farther did he have to go? $2\frac{3}{5}$ mi

How Do You Describe a Guy Who Has Jokes Written All Over One Leg?

Do each exercise and find your answer at the bottom of the page. Cross out the letter above each correct answer. When you finish, the answer to the title question will remain.

C-50

TOPIC 3-m: Problem Solving: Mixed Applications



1. It took 3 weeks to build a road between the towns of Abacus and Calculus, as shown in the diagram.
   A. How many more miles of road were built during week 3 than during week 1? $1\frac{5}{10}$ mi
   B. What is the total length of the new road? $12\frac{3}{5}$ mi
2. Meg has $5\frac{3}{4}$ yd of fabric. She needs $1\frac{1}{8}$ yd to make a vest and $2\frac{1}{2}$ yd to make a skirt. How much fabric will be left for a jacket? $2\frac{1}{8}$ yd
3. The road to Rustic Canyon Camp is $9\frac{1}{5}$ mi long. The distance by boat is $3\frac{3}{4}$ mi. How much less is the distance by boat? $5\frac{1}{20}$ mi
4. Station KROQ played three songs in a row. The first song lasted $3\frac{1}{6}$ min, the second $2\frac{3}{4}$ min, and the third $3\frac{2}{3}$ min. How long did it take to play all three songs? $9\frac{2}{12}$ min
5. Lisa's desk is $46\frac{1}{2}$ in. wide. Her bookcase is 30 in. wide. If she puts both of them against a wall that is 98 in. wide, how much space will be left for a file cabinet? $21\frac{1}{2}$ in.
6. Stock prices for three companies are given in the table. Prices are given in eighths of a dollar.

Stock	Open	High	Low	Close
Tech Computer	$33\frac{1}{2}$	$39\frac{3}{4}$	$32\frac{1}{8}$	35
ROM Bus Line	$67\frac{7}{8}$	$71\frac{5}{8}$	63	$63\frac{1}{2}$
Air Chance	$15\frac{1}{4}$	$18\frac{1}{2}$	$14\frac{3}{8}$	18

   A. What was the difference between the high and low prices of Tech Computer? $\$7\frac{5}{8}$
   B. What was the difference between the opening and closing prices of ROM Bus Line? $\$4\frac{3}{8}$
   C. Max Mix bought one share of each stock at its opening price. How much did he pay? $\$116\frac{5}{8}$
   D. Hugh Mann bought 100 shares of Air Chance at the opening price and sold them at the closing price. How much profit did he make on each share? $\$2\frac{3}{4}$

L	F	A	T	U	R	E	N	K	N	O	W	E	D	E	R
$4\frac{3}{8}$	$2\frac{5}{8}$	$5\frac{9}{20}$	$1\frac{1}{5}$	$18\frac{1}{2}$	$2\frac{3}{4}$	$7\frac{5}{8}$	$4\frac{1}{8}$	$117\frac{1}{8}$	$9\frac{7}{12}$	$7\frac{1}{4}$	$116\frac{5}{8}$	$2\frac{1}{8}$	$5\frac{13}{20}$	$21\frac{1}{2}$	$9\frac{11}{12}$	$12\frac{3}{5}$

FOO KNEE

Where Do Trees Go When One Tree Has a Birthday?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

C-48

TOPIC 3-k: Subtracting Mixed Numbers with Renaming

(1) $8\frac{1}{4} - 5\frac{1}{2} = 2\frac{3}{4}$
(2) $9\frac{1}{3} - 4\frac{5}{6} = 4\frac{1}{2}$
(3) $6\frac{3}{10} - 2\frac{1}{2} = 3\frac{4}{5}$
(4) $7\frac{1}{5} - 3\frac{3}{4} = 3\frac{9}{20}$
(5) $12\frac{4}{9} - 1\frac{2}{3} = 10\frac{7}{9}$
(6) $30\frac{1}{4} - 8\frac{7}{12} = 21\frac{2}{3}$
(7) $18\frac{1}{3} - 3\frac{4}{5} = 14\frac{8}{15}$
(8) $9\frac{2}{9} - 8\frac{1}{2} = \frac{13}{18}$
(9) $5\frac{1}{4} - \frac{7}{10} = 4\frac{11}{20}$
(10) $27\frac{2}{3} - 6\frac{7}{8} = 20\frac{19}{24}$
(11) $44\frac{11}{15} - 38\frac{2}{5} = 6\frac{1}{3}$
(12) $15\frac{1}{6} - \frac{3}{10} = 14\frac{13}{15}$

(13) Les Anderson set a record when he caught a salmon that weighed $97\frac{1}{4}$ lb. Robert Wilson caught a salmon that weighed $74\frac{9}{16}$ lb. How much less than the record was this? $22\frac{11}{16}$ lb

(14) A cabinet has shelves that are $11\frac{1}{2}$ in. apart. On one shelf, Mike stacked a VCR that is $5\frac{1}{4}$ in. high on top of an amplifier that is $3\frac{3}{8}$ in. high. How much space is left above the VCR? $2\frac{7}{8}$ in.

TH $3\frac{9}{20}$	IN $22\frac{11}{16}$	TO $20\frac{11}{24}$	ES $2\frac{3}{4}$	TR $20\frac{19}{24}$	IT $22\frac{3}{16}$	EE $\frac{13}{18}$	SL $10\frac{5}{9}$	OW $2\frac{7}{8}$	DR $4\frac{1}{2}$	UM $2\frac{1}{4}$
TO $14\frac{13}{15}$	BE $6\frac{3}{5}$	AM $14\frac{5}{15}$	UP $3\frac{4}{5}$	RP $\frac{7}{18}$	ST $10\frac{7}{9}$	AR $14\frac{4}{15}$	KS $6\frac{1}{3}$	CA $21\frac{2}{3}$	TY $4\frac{7}{20}$	KE $4\frac{11}{20}$

T	O	I	T	S	L	U	M	B	E	R	P	A	R	T	Y

TO ITS LOOBER PARTY

Why Does Cirilla Say That She Used to be Twins?

Do the exercises mentally. Write the letter of each exercise in the box under its answer.

1 yd = 36 in.	1 qt = 32 oz
1 lb = 16 oz	1 hr = 60 min

I

- (R) $\frac{1}{2} \times 26$ 13
- (S) $\frac{1}{2} \times 40$ 20
- (M) $\frac{1}{3} \times 21$ 7
- (I) $\frac{1}{3} \times 75$ 25
- (H) $\frac{1}{4} \times 12$ 3
- (T) $\frac{1}{4} \times 36$ 9
- (C) $\frac{3}{4} \times 36$ 27
- (E) $\frac{3}{4} \times 80$ 60
- (H) $33 \times \frac{1}{3}$ 11
- (A) $33 \times \frac{2}{3}$ 22

II

- (O) $\frac{1}{5} \times 40$ 8
- (A) $\frac{2}{5} \times 40$ 16
- (P) $\frac{3}{5} \times 40$ 24
- (T) $\frac{4}{5} \times 40$ 32
- (E) $32 \times \frac{1}{8}$ 4
- (H) $40 \times \frac{3}{8}$ 15
- (R) $72 \times \frac{5}{8}$ 45
- (E) $\frac{2}{9} \times 54$ 12
- (R) $50 \times \frac{1}{10}$ 5
- (U) $120 \times \frac{3}{10}$ 36

III

- (S) $\frac{3}{4}$ of 32 24
- (H) $\frac{5}{7}$ of 21 15
- (E) $\frac{4}{9}$ of 63 28
- (O) $\frac{1}{12}$ of 36 3
- (A) $\frac{7}{10}$ of 50 35
- (E) $\frac{9}{10}$ of 10 9
- (S) $\frac{6}{11}$ of 66 36
- (W) $\frac{3}{5}$ of 55 33
- (H) $\frac{2}{15}$ of 60 8
- (O) $\frac{1}{6}$ of 540 90

IV

- (R) $\frac{1}{3}$ of a yd = 12 in.
- (F) $\frac{1}{4}$ of a lb = 4 oz
- (E) $\frac{1}{2}$ of a qt = 16 oz
- (T) $\frac{2}{3}$ of an hr = 40 min
- (H) $\frac{3}{4}$ of a yd = 27 in.
- (W) $\frac{7}{8}$ of a lb = 14 oz
- (N) $\frac{5}{8}$ of a qt = 20 oz
- (W) $\frac{5}{6}$ of an hr = 50 min

Answers for Columns I and II:

3	4	5	6	7	8	9	11	12	13	14	15	16	20	21	22	23	24	25	27	32	36	45	60
H	E	R		M	O	T	H	E	R		H	A	S		A		P	I	C	T	U	R	E

Answers for Columns III and IV:

2	3	4	7	8	9	12	13	14	15	16	20	23	24	27	28	31	33	35	36	37	40	50	90
	O	F		H	E	R		W	H	E	N		S	H	E		W	A	S		T	W	O

C-51 TOPIC 4-a: Mental Math Finding a Fraction of a Number

NOTE: Emphasize to students that, even though they divide to get each answer, they are multiplying by a fraction.

Why Did the Math Book Go On a Diet?

Estimate each product using a **compatible** number. Find your answer in the Code Key and notice the letter next to it. Write this letter in the box containing the number of the exercise.

Exercise	ESTIMATE	Exercise	ESTIMATE
(1) $\frac{1}{3} \times 11$	4	(2) $\frac{1}{3}$ of 25	8
(3) $\frac{1}{5}$ of 36	7	(4) $\frac{1}{5} \times 48$	10
(5) $\frac{1}{7}$ of 15	2	(6) $\frac{1}{4} \times 19.5$	5
(7) $\frac{1}{6}$ of 52	9	(8) $\frac{1}{10}$ of 303	30
(9) $\frac{1}{9} \times 25.8$	3	(10) $\frac{1}{8}$ of 66.7	8
of 13.9	7	(12) $\frac{1}{12}$ of 62.5	5
(13) $\frac{1}{5}$ of 99.2	20	(14) $\frac{1}{9} \times 16.5$	2
(15) $\frac{1}{7}$ of 30	4	(16) $\frac{1}{8}$ of 82.1	10
(17) $\frac{1}{20} \times 23.5$	1	(18) $\frac{1}{11} \times 64$	6
(19) $\frac{1}{3}$ of 60.3	20	(20) $\frac{1}{10}$ of 77.5	8

CODE KEY	
about 1	H
about 2	I
about 3	U
about 4	O
about 5	E
about 6	N
about 7	A
about 8	T
about 9	S
about 10	R
about 12	P
about 20	C
about 30	D
about 40	L
about 50	F

(21) Mortimer has read about $\frac{1}{6}$ of a 298-page **novel**. Estimate the number of pages he has read.

(22) The clothes at Trendy Togs are on sale at $\frac{1}{4}$ **off** the regular price. About how much would you save on a suit with a regular price of $119.50? $ 30

14	2	17	11	8	21	16	3	13	20	5	1	18	7	10	15	4	12	22	9	19	6
I	T	H	A	D	F	R	A	C	T	I	O	N	S	T	O	R	E	D	U	C	E

IT HAD FRACTIONS TO REDUCE

TOPIC 4.b Estimating a Fraction of a Number C-52

Did All the Animals Go onto Noah's Ark in Pairs?

Estimate each product using a compatible number. Under each exercise, circle the letter of the better choice. Write this letter in the box containing the number of the exercise.

(1) $\frac{1}{3} \times 17$	(2) $\frac{1}{4} \times 29$	(3) $\frac{1}{5} \times 98$	(4) $\frac{2}{3} \times 28$
V about 4	(O) about 7	K about 22	(T) about 19
(E) about 6	C about 6	about 20	R about 16
(5) $\frac{3}{4}$ of 45	(6) $\frac{1}{7}$ of 706	(7) $\frac{3}{5}$ of 19	(8) $\frac{1}{8}$ of 159
(I) about 34	F about 90	R about 14	G about 30
B about 30	(S) about 100	(E) about 11	(P) about 20
(9) $\frac{7}{10} \times 77$	(10) $\frac{2}{3} \times 154$	(11) $\frac{1}{4}$ of 270	(12) $\frac{1}{12}$ of 365
(W) about 54	(T) about 100	Y about 80	(S) about 30
A about 60	H about 90	(H) about 70	P about 25

(13) $\frac{1}{6}$ of $31.50	(14) $\frac{2}{9}$ of $87.75	(15) $\frac{3}{10}$ of $297.95
(E) about $5.00	(N) about $20.00	M about $80.00
D about $4.00	F about $30.00	(W) about $90.00
(16) $\frac{1}{4}$ of 25	(17) $\frac{5}{8} \times 47$	(18) $\frac{2}{5}$ of $148.25
(P) greater than 6	S greater than 30	B more than $60.00
R less than 6	(N) less than 30	(W) less than $60.00

(19) About $\frac{1}{3}$ of the 238 students at Adams Junior High walk to school. Estimate the number who walk.
(I) about 80 G about 90

(20) About $\frac{9}{10}$ of the 387 students at Lincoln School like math. Estimate the number who like math.
D about 300 about 360

4	11	7		18	2	20	9	12		15	1	17	10		5	14		3	16	8	19	13	6
T	H	E		W	O	R	M	S		W	E	N	T		I	N		A	P	P	L	E	S

C-53 TOPIC 4.b Estimating a Fraction of a Number

What Did the Cowboy Artist Like to Do?

DRAW HIS GUN

Write each answer, then mark it in the answer columns. For each set of exercises, there is one extra answer. Write the letter of this answer in the box containing the number of this answer in the corresponding box at the right.

4	9	6	2	7	1	5	10	3	8
D	R	A	W	H	I	S	G	U	N

	Exercises	Answers		Exercises	Answers
1	$\frac{1}{2} \times \frac{1}{4}$ = $\frac{1}{8}$		6	$\frac{1}{3} \times 5$ = $1\frac{2}{3}$	
	$\frac{2}{5} \times \frac{1}{3}$ = $\frac{2}{15}$	(X) $\frac{2}{15}$ (I) $\frac{9}{28}$		$\frac{1}{5} \times 8$ = $1\frac{3}{5}$	(X) $1\frac{1}{2}$ (X) $1\frac{2}{3}$
	$\frac{3}{4} \times \frac{5}{7}$ = $\frac{15}{28}$	(X) $\frac{1}{8}$ (X) $\frac{15}{28}$		$\frac{1}{4} \times 6$ = $1\frac{1}{2}$	(A) $1\frac{1}{8}$ (X) $1\frac{3}{5}$
2	$\frac{3}{10} \times \frac{1}{2}$ = $\frac{3}{20}$		7	$\frac{2}{5} \times 11$ = $4\frac{2}{5}$	
	$\frac{5}{8} \times \frac{1}{6}$ = $\frac{5}{48}$	(X) $\frac{1}{2}$ (X) $\frac{3}{20}$		$\frac{7}{8}$ of 2 = $1\frac{3}{4}$	(X) $2\frac{6}{7}$ (H) $2\frac{1}{2}$
	$\frac{2}{3} \times \frac{3}{4}$ = $\frac{1}{2}$	(X) $\frac{5}{48}$ (W) $\frac{3}{8}$		$4 \times \frac{5}{7}$ = $2\frac{6}{7}$	(X) $4\frac{2}{5}$ (X) $1\frac{3}{4}$
3	$\frac{5}{6} \times \frac{4}{5}$ = $\frac{2}{3}$		8	$\frac{3}{100}$ of 5 = $\frac{3}{20}$	
	$\frac{3}{8} \times \frac{1}{3}$ = $\frac{1}{8}$	(X) $\frac{2}{3}$ (X) $\frac{9}{16}$		$\frac{5}{6}$ of $\frac{7}{10}$ = $\frac{7}{12}$	(X) $\frac{3}{20}$ (X) $\frac{7}{12}$
	$\frac{9}{10} \times \frac{5}{8}$ = $\frac{9}{16}$	(U) $\frac{5}{8}$ (X) $\frac{1}{8}$		$\frac{3}{8} \times \frac{8}{3}$ = 1	(X) 1 (N) $\frac{1}{2}$
4	$\frac{1}{2}$ of $\frac{1}{2}$ = $\frac{1}{4}$		9	$\frac{1}{2} \times \frac{1}{3} \times \frac{1}{4}$ = $\frac{1}{24}$	
	$\frac{3}{5}$ of $\frac{1}{4}$ = $\frac{3}{20}$	(D) $\frac{1}{6}$ (X) $\frac{5}{18}$		$\frac{2}{3} \times \frac{1}{4} \times \frac{2}{3}$ = $\frac{1}{9}$	(X) $\frac{1}{9}$ (X) $\frac{1}{6}$
	$\frac{2}{3}$ of $\frac{5}{12}$ = $\frac{5}{18}$	(X) $\frac{3}{20}$ (X) $\frac{1}{4}$		$\frac{3}{5} \times \frac{1}{2} \times \frac{5}{9}$ = $\frac{1}{6}$	(R) $\frac{5}{12}$ (X) $\frac{1}{24}$
5	Jay found $\frac{1}{3}$ of a sheet cake in the kitchen. He ate $\frac{1}{2}$ of it. What fraction of the whole cake did he eat? $\frac{1}{6}$	(X) $\frac{1}{10}$	10	The width of a photograph is $\frac{7}{10}$ of the length. The length is 5 inches. What is the width? $3\frac{1}{2}$ in.	(G) $3\frac{1}{4}$
	The distance around a track is $\frac{1}{4}$ mile. Diana ran $\frac{2}{5}$ of the distance. How far did she run? $\frac{1}{10}$ mi	(S) $\frac{1}{8}$ (X) $\frac{1}{6}$		A recipe for 4 dozen cookies calls for $\frac{3}{4}$ cup of sugar. How much sugar is needed to make 2 dozen cookies? $\frac{3}{8}$ c	(X) $3\frac{1}{2}$ (X) $\frac{3}{8}$

TOPIC 4-c: Multiplying Fractions C-54

Moving Words

Do the exercises below and find your answers in the rectangle. Shade in each area containing a correct answer. You will get to the bottom of this mystery!

① $\frac{2}{5} \times \frac{1}{4}$ KNOW	② $\frac{3}{7} \times \frac{1}{6}$ STREET	③ $\frac{7}{8} \times \frac{2}{3}$ SOMETIMES	④ $\frac{3}{5} \times \frac{15}{16}$ THE	⑤ $\frac{4}{15} \times \frac{5}{8}$ THIRD	⑥ $\frac{3}{10} \times \frac{5}{6}$ DO	⑦ $\frac{2}{3} \times \frac{9}{20}$ IS
⑧ $\frac{4}{5} \times \frac{1}{6}$ THAT	⑨ $\frac{8}{9} \times \frac{1}{12}$ STREET	⑩ $\frac{3}{8} \times \frac{8}{15}$ AND	⑪ $\frac{5}{12} \times \frac{9}{10}$ WHY	⑫ $\frac{2}{3} \times \frac{2}{9}$ RUNS	⑬ $\frac{4}{7} \times \frac{7}{10}$ CALLED	⑭ $\frac{9}{50} \times \frac{5}{24}$ SIXTY
⑮ $\frac{10}{3} \times \frac{2}{5}$ STREET	⑯ $\frac{12}{5} \times \frac{5}{8}$ YOU	⑰ $\frac{20}{7} \times \frac{14}{15}$ SIXTY	⑱ $\frac{10}{9} \times \frac{27}{4}$ BETWEEN	⑲ $\frac{20}{33} \times \frac{11}{30}$ STREET	⑳ $\frac{2}{15} \times \frac{100}{3}$ FIRST	㉑ $\frac{8}{9} \times \frac{15}{6}$ MINUTE

$\frac{1}{4}$ DO	$\frac{4}{27}$ RUNS	$\frac{1}{6}$ THIRD
$1\frac{1}{2}$ YOU	$7\frac{1}{2}$ BETWEEN	$\frac{2}{9}$ STREET
$\frac{1}{10}$ KNOW	$\frac{3}{80}$ SIXTY	$\frac{3}{10}$ IS
$\frac{3}{8}$ WHY	$4\frac{4}{9}$ FIRST	$\frac{7}{12}$ SOMETIMES
$\frac{9}{16}$ THE	$\frac{1}{14}$ STREET	$\frac{2}{5}$ CALLED
$1\frac{1}{3}$ STREET	$\frac{1}{5}$ AND	$2\frac{2}{3}$ MINUTE
$\frac{2}{15}$ THAT	$2\frac{2}{3}$ SIXTY	$\frac{2}{21}$ STREET

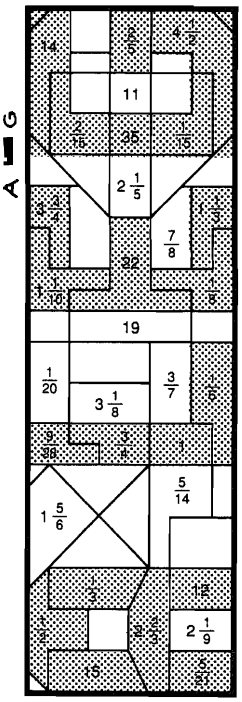
Do the exercises above and find your answers in the rectangle. Shade in each area containing a correct answer. You will get to the bottom of this mystery!

C-55

TOPIC 4-d Multiplying Fractions
Simplifying Before Multiplying

What Has a Bottom at the Top?

Do the exercises below and find your answers in the rectangle. Shade in each area containing a correct answer. You will get to the bottom of this mystery!



① $\frac{2}{3} \times \frac{1}{10}$ $\frac{1}{15}$ ② $\frac{5}{9} \times \frac{3}{5}$ $\frac{1}{3}$ ③ $\frac{8}{3} \times \frac{1}{2}$ $1\frac{1}{3}$

④ $\frac{1}{6} \times \frac{10}{7}$ $\frac{5}{21}$ ⑤ $\frac{9}{5} \times \frac{5}{12}$ $\frac{3}{4}$ ⑥ $\frac{6}{5} \times \frac{15}{4}$ $4\frac{1}{2}$

⑦ $\frac{9}{10} \times \frac{25}{6}$ $3\frac{3}{4}$ ⑧ $\frac{5}{8}$ of 24 15 ⑨ $\frac{7}{4} \times 20$ 35

⑩ $\frac{12}{35} \times \frac{15}{16}$ $\frac{9}{28}$ ⑪ $\frac{8}{7} \times \frac{21}{2}$ 12 ⑫ $\frac{3}{10} \times \frac{5}{12}$ $\frac{1}{8}$

⑬ $\frac{1}{2} \times \frac{4}{9} \times \frac{3}{5}$ $\frac{2}{15}$ ⑭ $\frac{6}{7} \times \frac{5}{6} \times \frac{7}{10}$ $\frac{1}{2}$

⑮ $\frac{8}{15} \times \frac{9}{4} \times \frac{11}{12}$ $1\frac{1}{10}$ ⑯ $\frac{7}{6} \times \frac{2}{5} \times 30$ 13

⑰ $\frac{4}{9} \times 16 \times \frac{3}{8}$ $2\frac{2}{3}$ ⑱ $\frac{3}{4} \times \frac{4}{3} \times \frac{5}{5}$ 1

⑲ The King's ship sank with 8 gold bars aboard. The King paid Captain Nemo $\frac{4}{5}$ of one bar for finding the gold. The Captain gave $\frac{1}{2}$ of his gold to charity. What fraction of a bar went to charity? $\frac{2}{5}$

⑳ There are 40 students at Bali High who play stringed instruments. Of these, $\frac{1}{4}$ play viola, $\frac{1}{5}$ play cello, and the rest play violin. How many students play violin? 22

㉑ Yikes McTugg bought $\frac{1}{2}$ pound of potato salad. He ate $\frac{2}{3}$ of it for lunch. How much potato salad was left for an afternoon snack? $\frac{1}{6}$ lb

TOPIC 4-d Multiplying Fractions
Simplifying Before Multiplying

C-56

What Is the Friendliest Kind of Airplane?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

① Bill made 5 gallons of fruit punch. If $\frac{1}{4}$ of the punch was cranberry juice, how much cranberry juice did he use? $1\frac{1}{4}$ gal

② A high-speed computer printer prints a page in $\frac{1}{6}$ second. Using this printer, how long would it take to print 30 pages? 5 s

③ A recipe tor pancakes calls for 1 cup of pancake mix and $\frac{3}{4}$ cup of milk. How much milk is needed to make $\frac{1}{2}$ the recipe? $\frac{3}{8}$ c

④ The students at Mix Middle School painted a mural 25 feet long. The height was $\frac{3}{10}$ of the length. How high was the mural? $7\frac{1}{2}$ ft

⑤ The Avocados own a $\frac{1}{4}$-acre orchard. Two fifths of the orchard is planted in orange trees. What fraction of an acre is planted in orange trees? $\frac{1}{10}$

⑥ A bottle of root beer contains $ of a liter. How much root beer is in 3 bottles? $2\frac{2}{5}$ L

⑦ In Mr. Prime's class, $\frac{9}{10}$ of the students had done their homework. Of these, $\frac{2}{3}$ had all correct answers. What fraction of the whole class had all correct answers? $\frac{3}{5}$

⑧ 14-karat gold is $\frac{7}{12}$ pure gold and $\frac{5}{12}$ other metals. How much pure gold is in 4 ounces of 14-karat gold? $2\frac{1}{3}$ oz

⑨ A lemon pie was cut into 6 equal pieces. Being on a diet, Matilda ate only half a piece. What fraction of the whole pie did she eat? $\frac{1}{12}$

⑩ Rachel has a collection of 40 stuffed animals. Of the animals, $\frac{3}{8}$ are bears and $\frac{1}{5}$ are dogs. The rest are other animals. How many other animals does she have? 17

NT $\frac{1}{10}$	AH $2\frac{1}{2}$	OT 17	EL $\frac{1}{9}$	AD $1\frac{1}{2}$	IN $\frac{1}{4}$	LO 14	VE $\frac{1}{12}$
FL $\frac{3}{5}$	CO $\frac{1}{2}$	ME 5	XU $2\frac{1}{3}$	PT 10	OP $\frac{3}{8}$	OV $2\frac{2}{5}$	ER $8\frac{1}{5}$

A H E L L O C O P T E R

A HELLO COPTER

C-57

TOPIC 4-e Problem Solving Mixed Applications

DAFFYNITION DECODER

1. Thousand dollar bill: P A R T ___ O F ___ A N
   13 100 57 75 15 880 54 152 100 55

2. Daffodil: A ___ G O O F Y ___ P I C K L E
   100 310 26 880 880 54 39 825 13 96 235 730 42 140

TO DECODE THESE TWO DAFFYNITIONS:

Fill in each blank and then add to complete each exercise. Find the circled answer in the code. Each time the answer appears, write the letter of the exercise above it.

(V) $1\frac{1}{2} \times 12 = 12 + 6 = 18$ (N) $5\frac{1}{2} \times 10 = 50 + 5 = 55$

(G) $4\frac{1}{3} \times 6 = 24 + 2 = 26$ (A) $3\frac{1}{3} \times 30 = 90 + 10 = 100$

(U) $2\frac{1}{5} \times 20 = 40 + 4 = 44$ (X) $7\frac{1}{4} \times 8 = 56 + 2 = 58$

(F) $1\frac{1}{8} \times 48 = 48 + 6 = 54$ (L) $4\frac{2}{3} \times 9 = 36 + 6 = 42$

(T) $3\frac{3}{4} \times 20 = 60 + 15 = 75$ (I) $6\frac{2}{5} \times 15 = 90 + 6 = 96$

(Y) $5\frac{4}{7} \times 7 = 35 + 4 = 39$ (R) $2\frac{3}{8} \times 24 = 48 + 9 = 57$

(C) $4\frac{7}{10} \times 50 = 200 + 35 = 235$ (S) $9\frac{5}{6} \times 30 = 270 + 25 = 295$

(O) $2\frac{1}{5} \times 400 = 800 + 80 = 880$ (D) $1\frac{2}{3} \times 180 = 180 + 120 = 300$

(E) There are 60 minutes in one hour. How many minutes are there in $2\frac{1}{3}$ hours? 140

(K) There are 100 centimeters in one meter. How many centimeters are there in $7\frac{3}{10}$ meters? 730

(P) Amos baked $2\frac{3}{4}$ dozen chocolate chip cookies. Then he ate $1\frac{2}{3}$ dozen. How many cookies were left? 13

TOPIC 4-f Mental Math: Using the Distributive Property C-58

Why Did Mr. Wurksemhard Nickname One of His Students "Mississippi"?

Under each exercise, circle the letter of the better choice. Write this letter in the box containing the number of the exercise.

A. Choose the better estimate.

① $3\frac{1}{5} \times 7\frac{7}{8}$ — V about 18 / **(E) about 25**
② $8\frac{2}{3} \times 5\frac{1}{7}$ — **(A) about 45** / L about 38
③ $2\frac{1}{4} \times 11\frac{7}{9}$
④ $6\frac{1}{3} \times 7$ — K about 37 / **(H) about 44**

⑤ $9\frac{2}{5} \times 2\frac{1}{6}$ — **(T) about 20** / G about 15
⑥ $1\frac{1}{8} \times 20\frac{3}{10}$ — R about 35 / **(O) about 23**
⑦ $6\frac{3}{6} \times 4\frac{2}{7}$ — **(I) about 26** / N about 22
⑧ $3\frac{4}{5} \times 5\frac{8}{9}$ — **(S) about 22** / P about 27

⑨ $2\frac{7}{10} \times 14\frac{5}{6}$ — Y about 55 / about 40
4 x 4 — Q about 28 / **(A) about 20**
⑪ $9\frac{5}{7} \times 7\frac{1}{4}$ — R about 63 / **(W) about 70**
⑫ $1\frac{1}{2} \times 19\frac{11}{12}$ — **(T) about 30** / N about 50

B. Estimate. Choose > or < for each .

⑬ $3\frac{1}{3} \times 3\frac{1}{5}$ — 9 — **(S) >** D c
⑭ $5\frac{1}{8} \times 12\frac{2}{9}$ 60 — **(H) >** I <
⑮ $8\frac{9}{10} \times 4\frac{3}{4}$ 45 — O > **(E) <**

⑯ $6\frac{6}{7} \times 10\frac{7}{12}$ 77 — R > **(W) <**
⑰ $2\frac{1}{5} \times 25\frac{1}{2}$ 50 — **(H) >** S <
⑱ $7\frac{7}{8} \times 50$ 400 — N > **(T) <**

C. Solve.

⑲ Amir is $8\frac{4}{5}$ times as tall as he appears in a photograph. He is $7\frac{1}{8}$ in. tall in the photograph. Estimate Amir's actual height.
B about 56 in. **(M) about 63 in.**

⑳ On a map, 1 inch represents $12\frac{1}{2}$ miles. If two towns are $3\frac{7}{8}$ in. apart on the map, estimate the actual distance between them.
L about 60 mi **(D) about 50 mi**

8	4	15		11	2	13		16	7	20	1		10	18		5	14	9		19	6	3	12	17
S	H	E		W	A	S		W	I	D	E		A	T		T	H	E		M	O	U	T	H

C-59 TOPIC 4-g Estimating Products of Mixed Numbers

Why Doesn't Orgo Eat Cabbage, Corn, Chicken, Clams, Cake, or Celery?

Write the letter of each correct answer in the box containing the number of the exercise. If the answer has a ●, shade in the box instead of writing a letter.

I. Write each mixed number as an improper fraction.

① $2\frac{3}{5}$ **$\frac{13}{5}$** ② $5\frac{1}{8}$ **$\frac{41}{8}$** ③ $3\frac{5}{7}$ **$\frac{26}{7}$** ④ $8\frac{3}{4}$ **$\frac{35}{4}$** ⑤ $4\frac{7}{10}$ **$\frac{47}{10}$**

⑥ $3\frac{5}{12}$ **$\frac{41}{12}$** ⑦ $7\frac{1}{6}$ **$\frac{43}{6}$** ⑧ $1\frac{17}{20}$ **$\frac{37}{20}$** ⑨ $6\frac{7}{8}$ **$\frac{55}{8}$** ⑩ $9\frac{1}{4}$ **$\frac{37}{4}$**

Answers 1 – 10
(O) $\frac{26}{7}$ (L) $\frac{47}{12}$ ● $\frac{55}{8}$ (T) $\frac{47}{10}$ (O) $\frac{37}{20}$ (E) $\frac{41}{8}$ ● $\frac{31}{4}$
(E) $\frac{43}{6}$ (N) $\frac{13}{5}$ (G) $\frac{47}{6}$ ● $\frac{35}{4}$ (V) $\frac{49}{6}$ (H) $\frac{41}{12}$

II. Multiply.

⑪ $2\frac{1}{2} \times 1\frac{2}{5}$ **$3\frac{1}{2}$** ⑫ $2\frac{1}{4} \times 3\frac{2}{3}$ **$8\frac{1}{4}$** ⑬ $1\frac{7}{8} \times 1\frac{1}{3}$ **$2\frac{1}{2}$**

⑭ $1\frac{3}{5} \times 4\frac{1}{6}$ **$6\frac{2}{3}$** ⑮ $1\frac{3}{4} \times 6$ **$10\frac{1}{2}$** ⑯ $2\frac{3}{10} \times 4$ **$9\frac{1}{5}$**

⑰ $8\frac{1}{3} \times \frac{4}{15}$ **$2\frac{2}{9}$** ⑱ $7\frac{1}{2} \times 2\frac{4}{5}$ **21** ⑲ $4\frac{1}{12} \times 1\frac{1}{7}$ **$4\frac{2}{3}$**

⑳ $3\frac{1}{8} \times 1\frac{3}{5} \times 2\frac{1}{2}$ **$12\frac{1}{2}$** ㉑ $2\frac{2}{3} \times \frac{7}{10} \times 6$ **$11\frac{1}{5}$**

Answers 11 – 21
(T) $4\frac{5}{6}$ ● $8\frac{1}{4}$ (S) 21 (K) $10\frac{1}{2}$ (E) $3\frac{1}{2}$ (N) $9\frac{3}{8}$ (L) $12\frac{1}{2}$
(D) $2\frac{2}{9}$ (C) $11\frac{1}{5}$ (O) $2\frac{1}{2}$ ● $9\frac{1}{5}$ (I) $11\frac{3}{4}$ (F) $4\frac{2}{3}$ (D) $6\frac{2}{3}$

6	2	12	14	8	11	18	1	5	9	20	10	15	7	16	21	4	19	13	3	17
H	E		D	O	E	S	N	T		L	I	K	E		C		F	O	O	D

HE DOESN'T LIKE C

TOPIC 4-h Multiplying Mixed Numbers C-60

...d S... Hear About..

A THE	B KID	C WHO	D TOLD	E HIS	F MOTHER	G NOT	H TO	I BUY
J HIM	K NEW	L UNDERWEAR BECAUSE	M IT'S	N	O NEVER	P WORN	Q OUT	?

Do each exercise and find your answer in one of the answer columns. Notice the word next to the answer. Write this word in the box containing the letter of the exercise.

Ⓐ $2\frac{2}{3} \times 1\frac{3}{4}$ **$4\frac{2}{3}$** Ⓑ $1\frac{7}{8} \times 2\frac{2}{5}$ **$4\frac{1}{2}$** Ⓒ $3\frac{1}{2} \times 3\frac{1}{2}$ **$12\frac{1}{4}$**

Ⓓ $5\frac{1}{3} \times 1\frac{3}{8}$ **$7\frac{1}{3}$** Ⓔ $4\frac{4}{5} \times 2\frac{1}{12}$ **10** Ⓕ $3\frac{1}{7} \times 1\frac{1}{6}$ **$3\frac{2}{3}$**

Ⓖ $1\frac{3}{10} \times 6$ **$7\frac{4}{5}$** Ⓗ $2\frac{3}{4} \times 18$ **$49\frac{1}{2}$** Ⓘ $2\frac{7}{10} \times \frac{5}{6}$ **$2\frac{1}{4}$**

Ⓙ $4\frac{1}{2} \times 4\frac{5}{9}$ **$20\frac{1}{2}$** Ⓚ $3\frac{2}{3} \times 1\frac{1}{4}$ **$4\frac{7}{12}$** Ⓛ $5\frac{5}{8}$ $9\frac{3}{5}$ **54**

Ⓜ $7\frac{1}{2} \times 1\frac{1}{3} \times \frac{7}{12}$ **$5\frac{5}{6}$** Ⓝ $4\frac{9}{10} \times \frac{4}{7} \times$ **56**

Ⓞ In an endurance race, Philip ran for $3\frac{3}{4}$ hours at an average s d of $9\frac{3}{5}$ miles per hour. How far did he run? **36** mi

Ⓟ A box of 100 nails weighs $1\frac{5}{8}$ pounds. Mark used $3\frac{1}{3}$ boxes ails to build a 2-story treehouse. How many pounds of nails did he use? **$5\frac{5}{12}$** lb

Ⓠ There are 3 starfighters and 10 aliens in the play "Space Trek." ach alien costume takes $2\frac{1}{4}$ yards of material. How much material is ne led for all the alien costumes? **$22\frac{1}{2}$** yd

Answer column (left): $5\frac{5}{6}$ BECAUSE; 45 TOYS; 10 HIS; $20\frac{1}{2}$ HIM; $4\frac{2}{3}$ THE; $5\frac{1}{3}$ BIG; 336 NEVER; $10\frac{3}{4}$ THAT; $2\frac{1}{4}$ BUY; $4\frac{7}{12}$ NEW; $7\frac{1}{3}$ TOLD; $5\frac{5}{12}$ WORN

Answer column (right): 4 UNDERWEAR; $23\frac{1}{4}$ HERE; $4\frac{1}{2}$ KID; $4\frac{5}{8}$ HOLES; $3\frac{2}{3}$ MOTHER; $49\frac{1}{2}$ TO; $22\frac{1}{2}$ OUT; $12\frac{1}{4}$ WHO; $37\frac{1}{2}$ A; $7\frac{4}{5}$ NOT; 56 IT'S; $2\frac{1}{5}$ GET

C-61 TOPIC 4-h Multiplying Mixed Numbers

What Is the Difference Between a Well-Dressed Lady and a Tired Dog?

Do each exercise below and find your answer in the appropriate answer column. Notice what is written in the two boxes next to the answer. Write the same thing in the two boxes above the exercise number at the bottom of the page.

① $\frac{3}{8} + \frac{1}{2}$ **$\frac{7}{8}$** ② $\frac{3}{4} - \frac{1}{3}$ **$\frac{5}{12}$** ③ $\frac{2}{3} + \frac{5}{6}$ **$1\frac{1}{2}$** ④ $\frac{11}{12} - \frac{1}{4}$ **$\frac{2}{3}$** ⑤ $\frac{1}{2} + \frac{7}{9}$ **$1\frac{5}{18}$**

⑥ $7\frac{9}{10} - 4\frac{2}{5}$ **$3\frac{1}{2}$** ⑦ $2\frac{1}{4} + 3\frac{9}{16}$ **$5\frac{13}{16}$** ⑧ $12\frac{5}{8} - 8\frac{1}{6}$ **$4\frac{11}{24}$** ⑨ $4\frac{2}{3} + 1\frac{4}{5}$ **$6\frac{7}{15}$** ⑩ $9\frac{1}{2} - 5\frac{3}{4}$ **$3\frac{3}{4}$**

⑪ $\frac{2}{3} \times \frac{7}{8}$ **$\frac{7}{12}$** ⑫ $\frac{3}{10} \times \frac{8}{9}$ **$\frac{4}{15}$** ⑬ $\frac{5}{12} \times \frac{1}{5} \times 8$ **$\frac{2}{3}$**

⑭ $\frac{3}{8}$ of 24 **9** ⑮ $1\frac{3}{4} \times 2\frac{2}{5}$ **$4\frac{1}{5}$** ⑯ $7\frac{1}{2} \times 1\frac{5}{9}$ **$11\frac{2}{3}$**

⑰ $\frac{7}{16}$ of 20 **$8\frac{3}{4}$** ⑱ $3\frac{5}{6} \times 12$ **46** ⑲ $2\frac{7}{10} \times 2\frac{7}{10} \times \frac{1}{3}$ **$2\frac{43}{100}$**

⑳ Hats R Us received a shipment of 60 novelty baseball caps. Of the caps, $\frac{1}{3}$ had bug antennae, $\frac{2}{5}$ had moose antlers, and the rest had plastic propellers. How many of the caps had plastic propellers? **16**

Answers 1 – 10: A P $6\frac{4}{15}$; T S $1\frac{5}{18}$; ■ W $3\frac{3}{4}$; D Y $1\frac{1}{2}$; E ■ $5\frac{13}{16}$; R S $\frac{7}{8}$; L O $4\frac{7}{24}$; H E $3\frac{1}{2}$; ■ T $\frac{2}{3}$; O G $6\frac{7}{15}$; V E $1\frac{1}{18}$; ■ A $\frac{5}{12}$; A R $5\frac{13}{16}$; ■ S $4\frac{11}{24}$

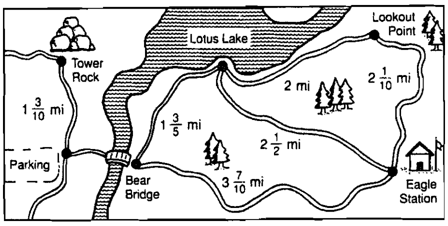
Answers 11 – 20: T E $3\frac{7}{10}$; ■ D $8\frac{3}{4}$; T H $\frac{7}{12}$; O D 13; R T $4\frac{1}{5}$; E A 46; T ■ $\frac{2}{5}$; N D $\frac{2}{3}$; A N 16; S A $9\frac{3}{4}$; ■ A $\frac{4}{15}$; L A $1\frac{2}{3}$; K I $2\frac{43}{100}$; ■ P 9

11	7	16	3	10	18	1	12	8	19	15	2	13	4	6	17	9	14	20	5
TH	E	LA	DY	WE	AR	S	A	SK	I	RT	AN	D	TH	E	DO	G	PA	NT	S

TOPIC 4-i: Review Addition, Subtraction, Multiplication C-62

What Can You Use to Cut Through Waves?

Use the map to solve the problems below. Cross out the letter next to each correct answer. When you finish, the answer to the title question will remain.



~~X~~	$1\frac{1}{5}$
W	$6\frac{5}{8}$
~~K~~	$9\frac{2}{5}$
~~R~~	$7\frac{1}{8}$
A	74
~~Y~~	$3\frac{1}{4}$
S	$3\frac{7}{10}$
A	3:30
~~L~~	69
E	$8\frac{1}{5}$
~~W~~	$1\frac{2}{5}$
~~Y~~	120
S	100
A	$1\frac{4}{5}$
~~Y~~	2:45

A SEA SAW

1. On Sunday, Boy Scout Troop 2 hiked from Bear Bridge to Lotus Lake, then to Lookout Point, then to Eagle Station, and then back to Bear Bridge. How far did Troop 2 hike that day? $9\frac{2}{5}$ mi
2. Jeff hiked $\frac{2}{3}$ of the distance from Lookout Point to Eagle Station and then stopped for lunch. How far had he hiked? $1\frac{2}{5}$ mi
3. How much farther is it from Eagle Station to Bear Bridge than from Eagle Station to Lotus Lake? $1\frac{1}{5}$ mi
4. Sierra Hiking Club took 12 tents and 20 sleeping bags on a weekend camping trip. Each tent weighed $5\frac{3}{4}$ pounds. What was the total weight of the tents? 69 lb
5. Monica hiked from Bear Bridge to Lotus Lake in $1\frac{1}{2}$ hours. She spent 3 hours at the lake and then hiked back to Bear Bridge in $1\frac{1}{4}$ hours. If she left at 9:00 A.M., what time did she get back? 2:45 P.M.
6. The distance from Tower Rock to Owl Creek (not shown) is $2\frac{1}{2}$ times the distance from Tower Rock to the parking lot. How far is it from Tower Rock to Owl Creek? $3\frac{1}{4}$ mi
7. The record for the longest trout caught in Lotus Lake is $25\frac{1}{2}$ inches. How much shorter than the record was the $18\frac{3}{8}$-inch trout that Karen caught? $7\frac{1}{8}$ in.
8. On July 4 weekend, 180 people hiked on the trails near Lotus Lake. Of these, camped overnight. How many of the hikers did *not* camp overnight? 120

C-63 TOPIC 4-j: Problem Solving: Using Data From a Map

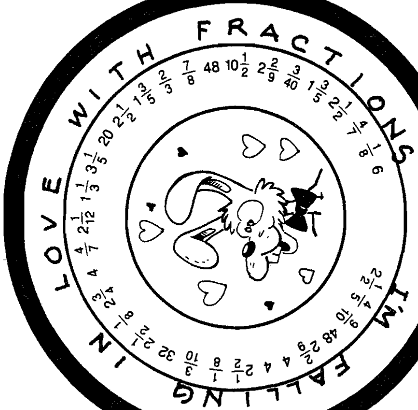
On The Button

Here is a BUTTON you can cut out and wear. To decode the button: Do each exercise and find your answer around the rim of the button. Each time the answer appears, write the letter of the exercise above it.

(G) $\frac{1}{5} \div \frac{2}{3}$ = $\frac{3}{10}$
(O) $\frac{2}{5} \div \frac{7}{10}$ = $\frac{4}{7}$
(T) $\frac{4}{5} \div \frac{1}{2}$ = $1\frac{3}{5}$
(A) $\frac{5}{12} \div \frac{3}{16}$ = $2\frac{2}{9}$
(W) $5 \div \frac{1}{4}$ = 20
(N) $\frac{1}{2} \div 4$ = $\frac{1}{8}$
(V) $\frac{5}{8} \div \frac{3}{10}$ = $2\frac{1}{12}$
(H) $\frac{1}{4} \div \frac{3}{8}$ = $\frac{2}{3}$
(M) $\frac{2}{15} \div \frac{1}{6}$ = $\frac{4}{5}$
(E) $\frac{8}{9} \div \frac{2}{3}$ = $1\frac{1}{3}$
(S) $\frac{3}{4} \div \frac{1}{8}$ = 6
(R) $6 \div \frac{4}{7}$ = $10\frac{1}{2}$
(C) $\frac{9}{10} \div 12$ = $\frac{3}{40}$
(L) $\frac{8}{11} \div \frac{2}{11}$ = 4

(I) A turtle walked $\frac{1}{2}$ mile at the rate of $\frac{1}{5}$ mile per hour. How long did it take? $2\frac{1}{2}$ hr

(F) A certain math textbook is $\frac{3}{4}$ of an inch thick. How many of these books will fit on a shelf that is 3 feet wide? (1 ft = 12 in.) 48



TOPIC 5-a Dividing Fractions **C-64**

Abracadabra, It's Magic

1. What magic trick does Mr. Utterbunk perform every evening?

HE TURNS INTO A GARAGE

2. What did the magician say to the fisherman?

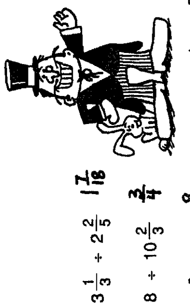
PICK A CARD, ANY COD

To decode the answers to the MAGICAL mysteries: Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(K) $2\frac{2}{3} \div 1\frac{3}{5}$ = $1\frac{2}{3}$
(S) $2\frac{1}{4} \div 5\frac{2}{5}$ = $\frac{5}{12}$
(I) $\frac{7}{12} \div 2\frac{5}{8}$ = $\frac{2}{9}$
(T) $7\frac{4}{5} \div 1\frac{3}{10}$ = 6
(E) $4\frac{1}{2} \div 1\frac{5}{7}$ = $2\frac{5}{8}$
(O) $3\frac{3}{4} \div 12\frac{1}{2}$ = $\frac{3}{10}$
(Y) $9\frac{1}{2} \div 4$ = $2\frac{3}{8}$
(N) $6 \div 1\frac{5}{16}$ = $4\frac{4}{7}$
(H) $3\frac{1}{3} \div 2\frac{2}{5}$ = $1\frac{7}{18}$
(R) $8 \div 10\frac{2}{3}$ = $\frac{3}{4}$
(U) $2\frac{2}{7} \div 10$ = $\frac{8}{35}$
(D) $8\frac{1}{3} \div 3$ = $2\frac{7}{9}$
(P) $5\frac{1}{2} \div \frac{3}{4}$ = $7\frac{1}{3}$
(A) $4\frac{7}{12} \div 3\frac{1}{7}$ = $1\frac{11}{24}$

(G) There are 3 boys and 2 girls in the Munch family. Mr. Krunch bought $3\frac{1}{2}$ pounds of candy to divide equally among them. How much candy did each child get? $\frac{7}{10}$ lb

(C) It takes 1 cup of liquid fertilizer to make $7\frac{1}{2}$ gallons of spray. How much liquid fertilizer is needed to make 80 gallons of spray? $10\frac{2}{3}$ c



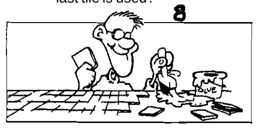
C-65 TOPIC 5-b: Dividing Mixed Numbers

Math Without Computing

$40 \div 7\frac{1}{2} = 5\frac{1}{3}$	$12 \div 1\frac{1}{4} = 9\frac{3}{5}$	$62\frac{1}{2} \div 4 = 15\frac{5}{8}$

Use the quotients in the box above to answer the following questions:

1. Ms. Mundo made 40 ounces of tropical punch to pour into glasses. Each glass holds $7\frac{1}{2}$ ounces.
   - A. How many glasses will be completely filled? 5
   - B. How many glasses will be needed to hold all the punch?
   - C. What fraction of the last glass is full of punch?
2. Elevator Music, Inc., has been hired to provide 12 hours of continuous taped music. Each tape plays for $1\frac{1}{4}$ hours.
   - A. How many tapes will be needed altogether? 10
   - B. How many of the tapes will be played completely? 9
   - C. What fraction of the last tape will be played? $\frac{3}{5}$
3. Mr. Reznick is gluing ceramic tiles on a kitchen counter $62\frac{1}{2}$ inches long. Each tile is 4 inches square.
   - A. How many complete tiles are used in each row? 15
   - B. How many tiles are needed for each row altogether? 16
   - C. In each row, what fraction of the last tile is used? $\frac{5}{8}$
4. Dawn has 12 yards of silk. She needs $1\frac{1}{4}$ yards of silk to make one skirt. How many skirts can she make? 9
5. Mr. Kazoo is planning to build a fence gate 40 inches wide. He plans to use boards $7\frac{1}{2}$ inches wide. How many boards should he buy? 6
6. Andrea cut $62\frac{1}{2}$ inches of ribbon into 4 equal hair ribbons. How long was each hair ribbon? $15\frac{5}{8}$ in.
7. Nuts to You has 40 pounds of almonds to pack into cans. Each can holds $7\frac{1}{2}$ pounds. After completely filling as many cans as possible, what part of another can is left? $\frac{1}{3}$
8. The coach needs 12 pounds of Peanut butter to feed his football team. If he buys peanut butter in jars containing $1\frac{1}{4}$ pounds, how many jars should he buy? 10
9. Naoki has $62\frac{1}{2}$ feet of crepe paper left on a roll. She is cutting it into streamers 4 feet long.
   - A. How many 4-foot streamers can she cut? 15
   - B. What fraction of a streamer will be left on the roll? $\frac{5}{8}$



TOPIC 5-c: Problem Solving: Meaning of the Quotient **C-66**

NOTE: Exercises 16 and 17 provide a forum for discussing the choice between multiplication and division to solve problems.

What Did the MS. Snerd Say When Her Son Ate 17 Chocolate-Chip Waffles with 2 Pints of Maple Syrup?

Do each exercise below. Find your answer and notice the letter next to it. Look for this letter in the string of letters near the bonom of the page and CROSS IT OUT each time it appears. When you finish, write the remaining letters in the rectangle at the bottom of the page.

(1) $\frac{2}{3} \times \frac{1}{5}$ $\frac{2}{15}$
(2) $\frac{3}{4} \times \frac{7}{12}$ $\frac{7}{16}$
(3) $\frac{3}{8}$ of $\frac{4}{9}$ $\frac{1}{6}$
(4) $\frac{7}{10} \div \frac{1}{2}$ $1\frac{2}{5}$
(5) $\frac{5}{12} \div \frac{5}{8}$ $\frac{2}{3}$
(6) $\frac{9}{20} \div \frac{4}{15}$ $1\frac{11}{16}$
(7) $1\frac{1}{3} \times 2\frac{1}{2}$ $3\frac{1}{3}$
(8) $5\frac{1}{4} \times 3\frac{1}{7}$ $16\frac{1}{2}$
(9) $1\frac{7}{8} \times \frac{7}{10} \times 4$ $5\frac{1}{4}$
(10) $4\frac{1}{2} \div 1\frac{4}{5}$ $2\frac{1}{2}$
(11) $2\frac{5}{8} \div 3\frac{3}{4}$ $\frac{7}{10}$
(12) $7\frac{3}{10} \div 5$ 23
(13) $12 \div 3\frac{1}{2}$ $3\frac{3}{7}$
(14) $6\frac{1}{4} \div \frac{5}{6}$ $7\frac{1}{2}$
(15) $\frac{2}{3} \times \frac{2}{3} \times \frac{2}{3}$ $\frac{8}{27}$

(16) Farmer Brown can harvest $2\frac{1}{3}$ acres of corn in 1 day. How many acres of corn can he harvest in $10\frac{1}{2}$ days? $24\frac{1}{2}$ acres

(17) Farmer Brown can harvest $2\frac{1}{3}$ acres of corn in 1 day. How many days will it take him to harvest $10\frac{1}{2}$ acres of corn? $4\frac{1}{2}$ days

• ANSWERS •

(R) $7\frac{1}{2}$	(D) $3\frac{1}{3}$			(G) $\frac{7}{16}$	(W) $5\frac{2}{3}$
(T) $1\frac{2}{5}$	(F) 27	(B) $\frac{7}{10}$	(K) $\frac{2}{3}$	(I) $24\frac{1}{2}$	(Y) $16\frac{1}{2}$
(S) $4\frac{1}{2}$	(J) $\frac{2}{15}$	(P) $5\frac{1}{4}$	(U) $3\frac{3}{7}$	(H) $\frac{9}{20}$	(A) $8\frac{1}{4}$
(M) $2\frac{1}{2}$	(N) $\frac{8}{27}$	(Z) $\frac{1}{6}$	(L) $2\frac{5}{6}$	(V) $1\frac{11}{16}$	(C) $1\frac{23}{50}$

T L S H G M O K D W I W P K S A R Y I F S I F T B U L Z N P E N

ANSWER TO PUZZLE: HOW WAFFLE

NOTE: These problems all involve multiplication or division.

What Do Sea Monsters Eat?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

(1) Ms. Daza bought $3\frac{1}{2}$ yards of yellow fabric. She used $\frac{2}{3}$ of the fabric to make a chicken costume. How much fabric did she use? $2\frac{1}{3}$ yd

(2) Julia studied math for $3\frac{1}{3}$ hours during the 4 days before her last math test. What was the average amount of time she studied each day? $\frac{5}{6}$ h

(3) There is less gravity on the planet Trang than on Earth. In fact, you could jump about $2\frac{2}{3}$ times as high on Trang as on Earth. If you can jump $4\frac{1}{4}$ feet on Earth, how high could you jump on Trang? $11\frac{1}{3}$ ft

(4) A gasoline pump delivers $4\frac{2}{5}$ gallons of gas per minute. How many minutes will it take to fill a gas tank that holds $16\frac{1}{2}$ gallons? ___ min

(5) A piece of plywood 24 inches wide is cut into strips $2\frac{1}{2}$ inches wide. How many strips of this width can be cut? 9

(6) The distance a bicycle travels with each turn of its wheels is about $3\frac{1}{7}$ times the tire diameter. The tires on Mike's bicycle have a diameter of $24\frac{1}{2}$ inches. How far does it travel with each turn of the wheels? 77 in.

(7) An aquarium holds $6\frac{1}{4}$ gallons of water. The water level has dropped to $\frac{4}{5}$ of this amount. How much water should be added to fill the aquarium? $1\frac{1}{4}$ gal

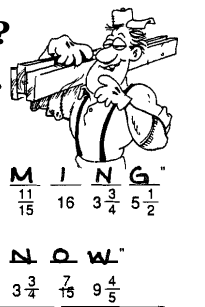
(8) Sean used $\frac{3}{4}$ cup of sugar to make a dozen brownies. How much sugar is in each brownie? $\frac{1}{16}$ cup

WA 77	LO $\frac{5}{6}$	FI $\frac{3}{20}$	VE $\frac{1}{16}$	DI $3\frac{3}{4}$	SH $74\frac{1}{2}$	AN $10\frac{3}{4}$
TS $2\frac{2}{3}$	DS 8	EA $1\frac{1}{4}$	HI $1\frac{5}{8}$	OU 9	PS $3\frac{1}{6}$	IT $11\frac{1}{3}$

F I S H A N D S H I P S

FISH AND SHIPS

How's Business?



1. Muffler salesman:

"E X H A U S T I N G"

$\frac{5}{16}$ $5\frac{5}{7}$ $1\frac{5}{12}$ $3\frac{7}{10}$ $1\frac{1}{14}$ $2\frac{2}{9}$ $10\frac{1}{4}$ 16 $3\frac{3}{4}$ $5\frac{1}{2}$

2. Fireworks salesman:

"R E A L L Y _ B O O M I N G"

$7\frac{1}{2}$ $1\frac{5}{6}$ $3\frac{7}{10}$ $\frac{3}{8}$ $\frac{3}{8}$ $4\frac{3}{5}$ $\frac{5}{6}$ 18 $\frac{7}{15}$ $\frac{7}{15}$ $\frac{11}{15}$ 16 $3\frac{3}{4}$ $5\frac{1}{2}$

3. Lumber salesman:

"I _ W O O D E N _ K N O W"

16 $5\frac{3}{4}$ $9\frac{4}{5}$ $\frac{7}{15}$ $\frac{7}{15}$ $8\frac{9}{16}$ $\frac{5}{16}$ $3\frac{3}{4}$ $9\frac{1}{2}$ $5\frac{7}{18}$ $3\frac{3}{4}$ $\frac{7}{15}$ $9\frac{4}{5}$

Each of these salesmen is answering the question, "HOW'S BUSINESS?" To decode their answers:

Do each exercise below and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

(M) $\frac{1}{3} + \frac{2}{5}$ $\frac{11}{15}$
(L) $\frac{7}{8} - \frac{1}{2}$ $\frac{3}{8}$
(H) $\frac{3}{4} + \frac{2}{3}$ $1\frac{5}{12}$
(D) $3\frac{5}{16} + 5\frac{1}{4}$ $8\frac{9}{16}$
(G) $9\frac{7}{10} - 4\frac{3}{5}$ $5\frac{1}{2}$

$+ 2\frac{7}{12}$ $10\frac{1}{4}$
(K) $13\frac{5}{9} - 8\frac{1}{6}$ $5\frac{7}{18}$
(Y) $6\frac{1}{2} - 1\frac{9}{10}$ $4\frac{3}{5}$
(E) $\frac{3}{8} \times \frac{5}{6}$ $\frac{5}{16}$
(U) $\frac{3}{4} \div \frac{7}{10}$ $1\frac{1}{14}$
(I) $\frac{2}{5}$ of 40 16
(R) $4\frac{1}{2} \times 1\frac{2}{3}$ $7\frac{1}{2}$
(S) $8\frac{1}{3} \div 3\frac{3}{4}$ $2\frac{2}{9}$
(B) $2\frac{5}{8} \times \frac{4}{7} \times 12$ 18
(X) $20 \div 3\frac{1}{2}$ $5\frac{5}{7}$
(A) $1\frac{3}{5} \times 2\frac{5}{16}$ $3\frac{7}{10}$
(O) $4\frac{2}{3} \div 10$ $\frac{7}{15}$

(N) George is making 8 gallons of Tropical Trip punch. He has already poured in $1\frac{3}{4}$ gal of pineapple juice and $2\frac{1}{2}$ gal of orange juice. The only other ingredient is 7-Up. How much 7-Up does George need? $3\frac{3}{4}$ gal

(W) Martha likes to walk around a park near her house. The park is square, $\frac{7}{10}$ mi on each side. One morning she walked around the park $3\frac{1}{2}$ times before stopping to rest. How far had she walked? $9\frac{4}{5}$ mi

Why Did Zorna Flunk the Grammar Test?

Solve each problem below. Find your solution and notice the two letters next to it. Write these letters in the two boxes above the exercise number at the bottom of the page.

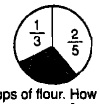
(1) Joe Ravioli went running 3 days this week. He ran $2\frac{1}{2}$ mi on Monday. $2\frac{3}{10}$ mi on Wednesday, and $3\frac{2}{5}$ mi on Friday. How far did he run altogether this week? $8\frac{1}{5}$ mi

(2) Nuts to You sells trail mix in 16-ounce packages. Half the weight is peanuts. There are also 2 oz of almonds. 1 oz of cashews. and 3 oz of raisins. The rest is chocolate chips. What fraction of the mix is chocolate chips? $\frac{1}{8}$

(3) Six Flags Amusement Park has found that $\frac{3}{5}$ of its customers ride the Colossus roller coaster. Of these. $\frac{1}{4}$ ride it again. What fraction of the customers ride the roller coaster twice? $\frac{3}{20}$

(4) A record album is $\frac{3}{16}$ of an inch thick. How many albums can be stacked to fit in a box 12 in. high? 64

(5) In the figure shown to the right what fractional part of the circle is shaded? $\frac{4}{15}$



(6) A recipe for 2 dozen cookies calls for $1\frac{1}{3}$ cups of flour. How much flour would be needed to make 5 dozen cookies? $3\frac{1}{3}$ c

(7) A backpacking club can average $2\frac{1}{2}$ miles per hour. At that rate, how long will it take for a hike of $8\frac{3}{4}$ miles? $3\frac{1}{2}$ h

(8) Lisa is working on plans for a 12-acre housing development. A park will cover $2\frac{1}{2}$ acres. and paved areas will take $1\frac{3}{4}$ acres. How many acres are left for home sites? $7\frac{3}{4}$

(9) Biff earned $45 working at Happy Days Drive-In. He spent $\frac{1}{3}$ of the money on gas for his car and $\frac{1}{5}$ of it on flowers for his girl friend. How much money does he have left for the big date? $21

(IT)	$\frac{1}{4}$
(EN)	$3\frac{1}{2}$ h
(EM)	$2\frac{3}{4}$
(AD)	$\frac{3}{20}$
(MM)	$21
(TO)	$8\frac{3}{8}$
(AS)	$8\frac{1}{5}$ mi
(TH)	$\frac{3}{10}$
(AT)	$4\frac{1}{8}$ h
(SE)	64
(LI)	$8\frac{1}{2}$ mi
(EH)	$3\frac{1}{3}$ c
(SH)	$\frac{1}{8}$
(NO)	$7\frac{3}{4}$
(RE)	$25
(CO)	$\frac{4}{15}$
(UR)	50

SH	EH	AD	NO	CO	MM	AS	EN	SE
2	6	3	8	5	9	1	7	4

SHE HAD NO COMMA SENSE

NOTE: This puzzle includes only fractions whose denominators are factors of 10 or 100. For this reason, decimals are easily found by writing equivalent fractions with denominators of 10 or 100.

Why Did Karjam Get a Rat Tire?

Write the letter of each correct answer in the box containing the number of the exercise. If the answer has a ●, shade in the box instead of writing a letter.

Write each fraction as a decimal.

① $\frac{3}{10}$ 0.3 ② $\frac{7}{10}$ 0.7
③ $\frac{1}{2}$ 0.5 ④ $\frac{1}{5}$ 0.2
⑤ $2\frac{3}{5}$ 2.6 ⑥ $2\frac{1}{10}$ 2.1

Write each decimal as a lowest-terms fraction or mixed number.

⑦ 0.7 $\frac{7}{10}$ ⑧ 0.4 $\frac{2}{5}$
⑨ 3.5 $3\frac{1}{2}$ ⑩ 8.2 $8\frac{1}{5}$
⑪ 8.9 $8\frac{9}{10}$ ⑫ 3.8 $3\frac{4}{5}$

Write each fraction as a decimal.

⑬ $\frac{43}{100}$ 0.43 ⑭ $\frac{7}{100}$ 0.07
⑮ $\frac{1}{4}$ 0.25 ⑯ $\frac{9}{25}$ 0.36
⑰ $\frac{13}{50}$ 0.26 ⑱ $\frac{17}{20}$ 0.85
⑲ $5\frac{16}{25}$ 5.64 ⑳ $5\frac{3}{4}$ 5.75

Write each **decimal as** a lowest-terms fraction or mixed number.

㉑ 0.67 $\frac{67}{100}$ ㉒ 0.09 $\frac{9}{100}$
㉓ 0.25 $\frac{1}{4}$ ㉔ 0.62 $\frac{31}{50}$
㉕ 4.35 $4\frac{7}{20}$ ㉖ 9.75 $9\frac{3}{4}$
㉗ 4.48 $4\frac{12}{25}$ ㉘ 9.06 $9\frac{3}{50}$

Answers

Ⓢ 0.2 Ⓛ 0.4 ● 2.1
Ⓝ 2.2 Ⓞ 2.6 Ⓐ 0.7
Ⓡ 0.3 Ⓔ 0.5 Ⓥ 0.8

Answers

8 Ⓐ $\frac{7}{10}$ Ⓘ $3\frac{4}{5}$
Ⓔ $3\frac{1}{2}$ Ⓨ $\frac{3}{10}$ ● $8\frac{1}{5}$
Ⓖ $3\frac{3}{5}$ Ⓗ $8\frac{9}{10}$ Ⓣ $\frac{1}{2}$

Answers

Ⓡ 0.36 Ⓗ 5.75 ● 0.85
Ⓒ 5.36 Ⓜ 0.65 Ⓝ 0.25
Ⓞ 0.43 Ⓐ 0.26 Ⓚ 0.44
Ⓣ 5.64 ● 0.07 Ⓑ 5.72

Answers

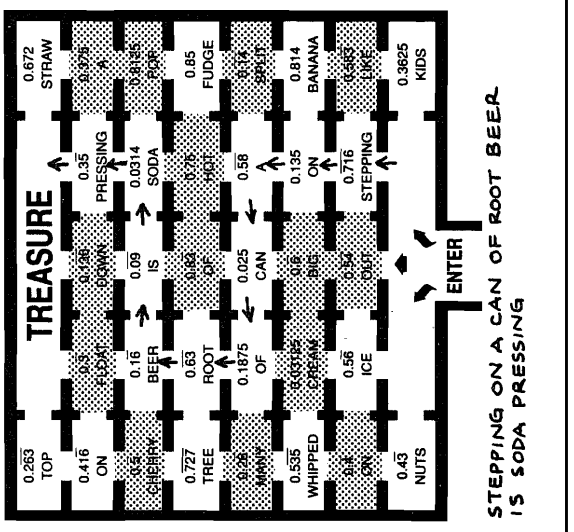
Ⓤ $9\frac{43}{50}$ Ⓡ $4\frac{12}{25}$ Ⓟ $\frac{14}{25}$
● $\frac{34}{50}$ ● $\frac{67}{100}$ Ⓕ $9\frac{3}{4}$
Ⓓ $\frac{1}{4}$ Ⓐ $4\frac{11}{20}$
Ⓦ $4\frac{7}{20}$ Ⓚ $9\frac{3}{50}$ Ⓔ $\frac{9}{100}$

19	11	22	16	9	14	25	7	4	21	2	6	26	13	1	28	24	12	15	18	8	20	3	10	27	5	17	23
T	H	E	R	E		W	A	S		A		F	O	R	K		I	N		T	H	E		R	O	A	D

Name each fraction as a repeating or terminating decimal. Find your answer in the maze. SHADE IN each room that contains a correct answer.

Then find a path to the Treasure that goes only through rooms that are NOT shaded. The words in those rooms will form an a-mazing message!

① $\frac{5}{6}$ 0.83 ② $\frac{6}{11}$ 0.54
③ $\frac{3}{8}$ 0.375 ④ $\frac{4}{9}$ 0.4
⑤ $\frac{5}{9}$ 0.5 ⑥ $\frac{2}{3}$ 0.6
⑦ $\frac{13}{16}$ 0.8125 ⑧ $\frac{4}{15}$ 0.26
⑨ $\frac{7}{12}$ 0.583 ⑩ $\frac{3}{22}$ 0.136
⑪ $\frac{14}{99}$ 0.14 ⑫ $\frac{1}{32}$ 0.03125
⑬ $\frac{3}{4}$ 0.75 ⑭ $\frac{1}{3}$ 0.3

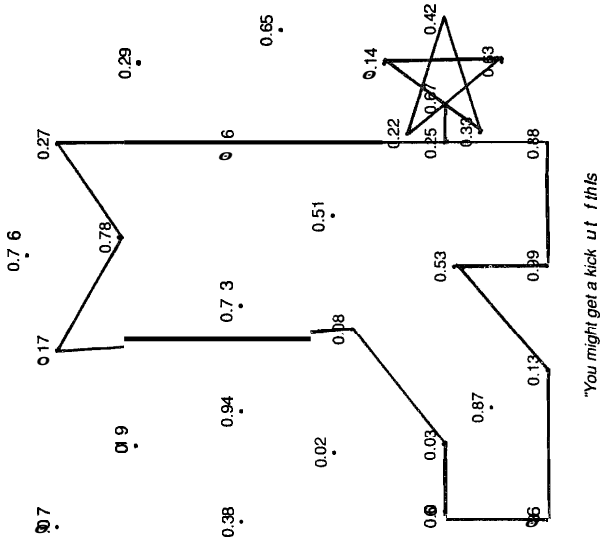


NOTE: This puzzle provides excellent practice to precede page C-76. Calculators are recommended.

DOT PLOT

Write each fraction as a decimal rounded to the nearest hundredth. Find your answers to the left. Connect the dots in the same order as the problems are numbered. (You may go through the same dot twice.)

① $\frac{2}{3}$ 0.67 ② $\frac{2}{9}$ 0.22 ③ $\frac{5}{8}$ 0.63 ④ $\frac{5}{12}$ 0.42 ⑤ $\frac{13}{40}$ 0.33 ⑥ $\frac{1}{7}$ 0.14 ⑦ $\frac{4}{6}$ 0.67 ⑧ $\frac{1}{4}$ 0.25 ⑨ $\frac{9}{16}$ 0.56 ⑩ $\frac{3}{11}$ 0.27 ⑪ $\frac{7}{9}$ 0.78 ⑫ $\frac{10}{6}$ 1.17 ⑬ $\frac{1}{12}$ 0.08 ⑭ $\frac{1}{30}$ 0.03 ⑮ $\frac{2}{35}$ 0.06 ⑯ $\frac{6}{7}$ 0.86 ⑰ $\frac{1}{8}$ 0.13 ⑱ $\frac{1}{1}$ 0.53 ⑲ $\frac{99}{100}$ 0.99 ⑳ $\frac{875}{1,000}$ 0.88 ㉑ $\frac{200}{80}$ 2.5



Where Is Moscow?

Each quotient in the table below is given as it would appear on an **8-digit** hand calculator. Use this information to do the exercises.

Find each answer at the bottom of the page. Write the letter of the exercise in the box containing its answer.

1 ÷ 7 →	0.1428571	23 ÷ 27 →	0.8518518
5 ÷ 12 →	0.4166666	39 ÷ 64 →	0.609375
9 ÷ 32 →	0.28125	13 ÷ 17 →	0.7647058
14 ÷ 15 →	0.9333333	4 ÷ 11 →	0.3636363
3 ÷ 16 →	0.1875	2 ÷ 55 →	0.0363636

I. Write each fraction as a decimal rounded to the nearest hundredth.

Ⓝ $\frac{14}{15}$ 0.93 Ⓐ $\frac{13}{17}$ 0.76 Ⓣ $\frac{5}{12}$ 0.42 Ⓗ $\frac{1}{7}$ 0.14
Ⓞ $\frac{39}{64}$ 0.61 Ⓣ $\frac{3}{16}$ 0.19 Ⓔ $\frac{4}{11}$ 0.36 Ⓐ $\frac{2}{55}$ 0.04

II. Write each fraction as a decimal rounded to the nearest thousandth.

Ⓔ $\frac{5}{12}$ 0.417 Ⓣ $\frac{9}{32}$ 0.281 Ⓤ $\frac{23}{27}$ 0.852 Ⓡ $\frac{14}{15}$ 0.933
Ⓞ $\frac{39}{64}$ 0.609 Ⓘ $\frac{3}{16}$ 0.188 Ⓝ $\frac{4}{11}$ 0.364 Ⓦ $\frac{2}{55}$ 0.036

III. Write each fraction as a decimal rounded to the nearest hundredth. Then add or subtract. Your answer will be a decimal very close to the actual sum or difference of the fractions.

Ⓣ $\frac{1}{7} + \frac{5}{12}$ 0.56 Ⓢ $\frac{14}{15} + \frac{39}{64}$ 1.54 Ⓝ $\frac{23}{27} + \frac{3}{16}$ 1.04 Ⓞ $\frac{13}{17} - \frac{1}{7}$ 0.62

$\frac{39}{64} - \frac{4}{11}$ 0.25 Ⓧ $\frac{14}{15} - \frac{3}{16}$ 0.74 Ⓑ $\frac{5}{12} + \frac{9}{32}$ 0.70 Ⓟ $\frac{4}{11} - \frac{2}{55}$ 0.32

0.62	0.852	0.19	1.41	0.188	0.93	0.361	0.56	0.14	0.417	0.34	0.70	0.76	0.933	1.04
O	U	T		I	N		T	H	E		B	A	R	N

0.364	0.36	0.74	0.281	0.931	0.42	0.609	0.78	0.32	0.04	1.54	0.67	0.25	0.61	0.036
N	E	X	T		T	O		P	A	S		C	O	W

Trivia Test

1. What is one thing it always takes to build a house?

A		P	O	U	N	D		O	F		N	A	I	L	S
5.9	3.3	38.7	0.2	8.5	6.6	3.1	17.1	0.2	7.7	9.6	6.6	5.9	11.5	18.6	16.5

2. What did the boy measuring stick say about the girl measuring stick?

I		W	A	N	T		T	O		M	E	T	E	R
11.5	6.3	40.8	5.9	6.6	1.2	1.4	1.2	0.2	31.1	23.8	2.4	1.2	2.4	10.9

Use a calculator for these exercises. The table below will help you change fractions to decimals. Do each exercise and find your answer in the code. Each time the answer appears, write the letter of the exercise above it. (Answers are rounded to the nearest tenth.)

Fraction-Decimal Equivalents

$\frac{1}{2} = 0.5$	$\frac{1}{4} = 0.25$	$\frac{1}{5} = 0.2$	$\frac{1}{8} = 0.125$
	$\frac{3}{4} = 0.75$	$\frac{2}{5} = 0.4$	$\frac{3}{8} = 0.375$
$\frac{1}{3} \approx 0.333$		$\frac{3}{5} = 0.6$	$\frac{5}{8} = 0.625$
$\frac{2}{3} \approx 0.667$		$\frac{4}{5} = 0.8$	$\frac{7}{8} = 0.875$

(F) $3\frac{2}{5} \times 2\frac{1}{2}$ 7.7 (W) $9\frac{1}{2} \times 4\frac{4}{5}$ 40.8 (U) $6\frac{3}{4} + 1\frac{7}{10}$ 8.5 (E) $18\frac{1}{2} \div 7\frac{4}{5}$ 2.4

(I) $20\frac{3}{5} - 9\frac{1}{8}$ 11.5 (A) $47\frac{2}{3} \div 8\frac{15}{10}$ 5.9 (R) $\frac{7}{8} \blacksquare 12\frac{1}{2}$ 10.9 (D) $7\frac{1}{3} - 4\frac{1}{5}$ 3.1

(S) $5\frac{9}{10} + 1\frac{5}{8} + 9$ 16.5 (O) $3\frac{31}{100} \div 16$ 0.2 (N) $7\frac{3}{4} \times \frac{2}{5} \times 2\frac{1}{8}$ 6.6

(L) Sofia's computer is $4\frac{1}{2}$ inches high. She put her disk drives side-by-side on top of the computer, then her monitor on top of the disk drives. If the disk drives are $2\frac{7}{8}$ inches high and the monitor is $11\frac{1}{4}$ inches high, how high is the system? 18.6 in.

(M) Mr. Gray drove $387\frac{1}{2}$ miles and used $16\frac{3}{10}$ gallons of gas. How many miles per gallon did he get? 23.8 mpg

(P) Roger can ride his bike at an average speed of $14\frac{1}{2}$ miles per hour. At this rate, how far will he travel in $2\frac{2}{3}$ hours? 38.7 mi

(T) The bones of a chicken weigh about $\frac{3}{8}$ of the total weight of the chicken. Nicole bought $3\frac{7}{10}$ pounds of chicken at $0.89 per pound. How much did she pay for bones? (Round your answer to the nearest cent.) $1.23

Did You Hear About...

A	B	C	D	E	F	G	H	I
THE	KID	WITH	ATE	SO	MUCH	JUNK	FOOD	THAT
J	K	L	M	N	O	P	Q	R
HIS	IDEA	OF	A	SQUARE	MEAL	WAS	A	CRACKER

Use a calculator to change each fraction to a decimal. Round to the nearest hundredth (if necessary). Then do the exercise and round your answer to the nearest hundredth (if necessary). Find your answer and notice the word next to it. Write this word in the box containing the letter of the exercise.

(A) $2\frac{4}{7} + 5\frac{2}{9}$ 7.79 (B) $3\frac{1}{6} + 1\frac{3}{4}$ 4.92 (C) $9\frac{7}{12} - 4\frac{1}{8}$ 5.45

2.57 + 5.22 3.17+1.75 9.58 − 4.13

(D) $12\frac{1}{4} - 7\frac{11}{15}$ 4.52 (E) $2\frac{1}{3} \times 3\frac{9}{16}$ 8.29 (F) $6\frac{8}{11} \times 2\frac{1}{2}$ 16.63

12.25−7.73 2.33×3.56 6.73×2.5

(G) $8\frac{5}{6} + 1\frac{7}{9}$ 4.96 (H) $9\frac{5}{12} + 4\frac{3}{5}$ 2.05 (I) $5\frac{1}{16} + 3\frac{6}{7}$ 8.92

8.83÷1.78 9.42÷4.6 5.06+3.86

(J) $11\frac{2}{3} - 2\frac{1}{32}$ 9.64 (K) $7\frac{3}{10} \times 4\frac{4}{11}$ 2.63 (L) $1\frac{7}{8} + 5$ 0.38

11.67−2.03 7.3×0.36 1.88÷5

(M) $8\frac{2}{9} + 6\frac{1}{5}$ 14.42 (N) $16\frac{1}{12} - 15\frac{4}{15}$ 0.81 (O) $9 \times 4\frac{13}{16}$ 43.29

8.22+6.2 16.08−15.27 9×4.81

(P) $20 + 3\frac{2}{7}$ 6.08 (Q) $\frac{3}{8}$ of $9\frac{1}{2}$ 3.61 (R) $(5\frac{3}{4})^2$ 33.06

20÷3.29 0.38×9.5 5.75×5.75

Answers A – I:

4.74 SUGAR	16.83 MUCH	8.84 WHEN	4.92 KID	8.92 THAT	2.27 STUFF	5.45 WHO	4.96 JUNK	7.79 THE
8.29 SO	4.46 DID	17.23 LITTLE	4.52 ATE	2.05 FOOD				

Answers J – R:

38.49 CANDY	0.38 OF	43.29 MEAL	3.61 A	2.34 BEST	14.42 A	6.08 WAS	0.69 GOOD	9.64 HIS
0.81 SQUARE	6.13 PIZZA	2.63 IDEA	33.06 CRACKER	0.46 FOR				

What Did the Food Critic Say About the Restaurants in Australia?

Find the value of each expression. Use the values for the variables given in the chart below. Write the letter of each exercise in the box under its answer.

$a = \frac{1}{2}$	$b = \frac{1}{3}$	$c = \frac{3}{4}$	$d = \frac{2}{5}$
$m = 2$	$n = 5$	$x = 6$	$y = 10$

(E) ax 3	(R) bx 2	(Y) cx $4\frac{1}{2}$
(H) ay 5	(E) bnx 10	(T) dy 4
(T) amx 6	(H) ab $\frac{1}{6}$	(S) $24a$ 12
(E) any 25	(E) bc $\frac{1}{4}$	(V) $24b$ 8

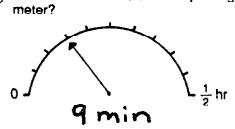
6	$\frac{1}{6}$	25	$4\frac{1}{2}$	9	12	3	2	8	$\frac{1}{4}$	$3\frac{1}{2}$	4	5	10
T	H	E	Y		S	E	R	V	E		T	H	E

(T) $a + b$ $\frac{5}{6}$	(A) $a - b$ $\frac{1}{6}$	(S) $\frac{x}{a}$ 12
(A) $a + c$ $1\frac{1}{4}$	(O) $c - b$ $\frac{5}{12}$	(L) $\frac{y}{b}$ 30
(E) $a + d$ $\frac{9}{10}$	(E) na $2\frac{1}{2}$	(T) $m - a$ $1\frac{1}{2}$
(B) $b + d$ $\frac{11}{15}$	(A) $\frac{n}{a}$ 10	(K) $\frac{4}{3}c$ 1

$\frac{11}{15}$	$2\frac{1}{2}$	12	$\frac{5}{6}$	$\frac{7}{12}$	1	$\frac{5}{12}$	$1\frac{1}{4}$	30	$\frac{1}{6}$	24	$1\frac{1}{2}$	$\frac{9}{10}$	10
B	E	S	T		K	O	A	L	A		T	E	A

☆☆☆ Test of Genius ☆☆☆

(1) How much time is left on this parking meter?



(2) Place the digits 1 through 9 in the nine squares to form a correct addition. Can this be done in more than one way?

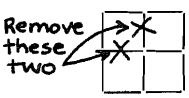
3 8 6
+ □ 4 1
9 2 7

There are many other solutions.

(3) A pail with 40 washers in it weighs 500 grams. The same pail with 20 washers in it weighs 420 grams. How much does the pail weigh? 340 g

(4) As a prize a contest winner gets to draw out one bill at a time from a box containing 10 five-dollar bills, 10 ten-dollar bills, and 10 twenty-dollar bills. The drawing ends when 3 bills of the same denomination are drawn, and, of course, the contest winner keeps whatever he has drawn. What is the largest sum of money that can be won under these conditions? $90

(5) The toothpicks in the drawing have been arranged to form four squares. Remove two of the toothpicks and leave only two squares.



(6) Look at the three views of the same cube below. What letter is on the face opposite H, A, and Y?

H → E A → X Y → N

(7) You have a bucket that holds 4 gallons of water and a second bucket that holds 7 gallons of water. The buckets have no markings. How can you go to the well and bring back exactly 5 gallons of water?

Fill 4, empty into 7. Fill 4, empty into 7 (leaving 1 gal in 4). Pour 7 back into well. Pour 1 gal from 4 to 7. Fill 4, empty into 7

(8) Suppose you were a detective and found these tracks on some damp ground. Do you have any ideas about how they were made?

One possibility: man with wooden leg push a wheelbarrow

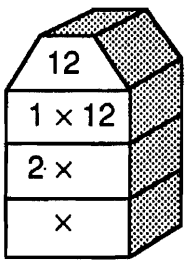
(9) Why are 1980 pennies worth almost $20?

1,980 pennies are worth $19.80

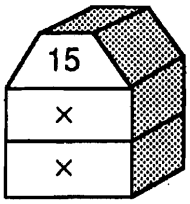
SCORING KEY
8 or 9 — Superstar Genius
6 or 7 — Star Genius
4 or 5 — Genius
3 or less — *Genius* of the Future

Factor Towers

Write a pair of factors in each "story" of the factor tower. Then count the number of different factors and write this number in the blank.



Number of factors ____



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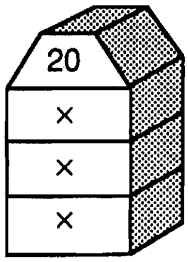

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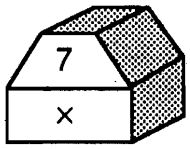

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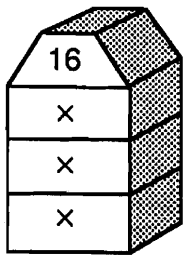

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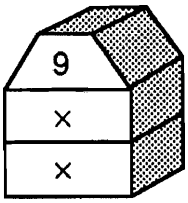

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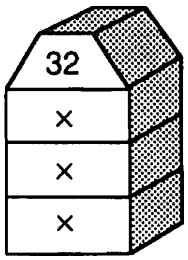

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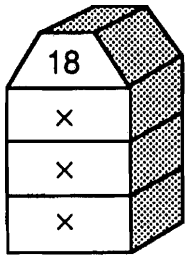

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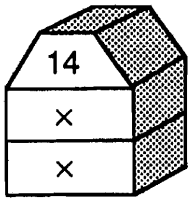

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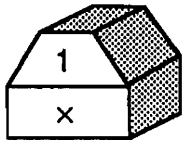

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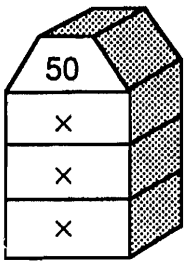

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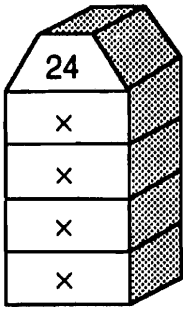

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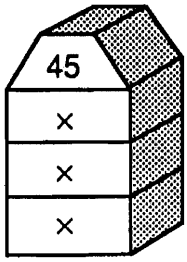

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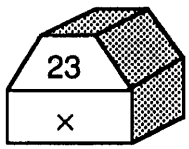

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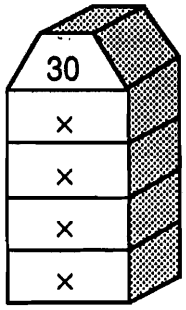

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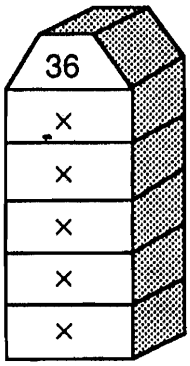

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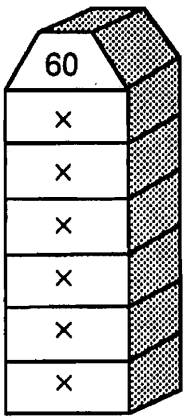

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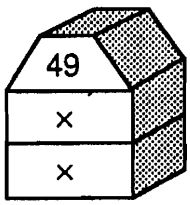

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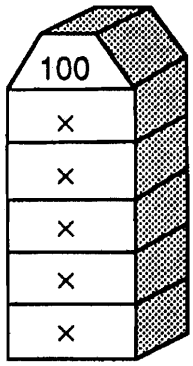

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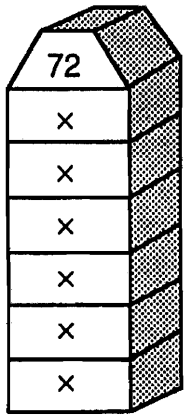

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