### **COMPENDIUM PIZZAZZ!**

### **Book D**



Gerard Romo Garrido



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# Middle School Math

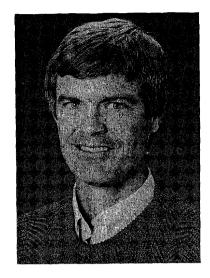
with

Measurement; Geometry; Perimeter and Area; Surface Area and Volume; Square Roots and Right Triangles

Mc Wright Group Graw Hill McGraw-Hill

Steve Marcy, Ph.D. Janis Marcy, M.A.

### The Authors:





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For Jennifer, Matt, Andy, and Jazz

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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.

# 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

2. A MOTIVATING GOAL FOR THE

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.

Other books by Steve and Janis Marcy published by Creative Publications

Pre-Algebra With Pizzazz! in a Binder Covers most topics in a pre-algebra curriculum

Algebra With Pizzazz! in a Binder Covers most topics in a first-year algebra curriculum

### How Can You Find a Double-Decker Bus?

For each exercise, circle the letter of the more reasonable measure. Write this letter in the box containing the number of the exercise.

The chart gives an approximate size for each of the most commonly used metric units of length.

Unit	Approximate Size
1 millimeter (rnm) 1 centimeter (cm) 1 meter (m) 1 kilometer (km)	thickness of a dime width of your smallest finger length of a baseball bat length of 10 football fields



1	length	n of an ant			2 leng	jth	n of a new per	ncil	
	R	5mm	M	5cm	•	١	19 mm	0	19 cm
3	heigh	t of a basketb	all	hoop	4 dista	ar	nce walked in	1 h	our
	U	30m	Н	3rn	K	(	5km	В	50m
5	diame	eter of a quart	er		6 leng	jth	of a paper cl	lip	
	G	24cm	0	24 rnm	E	=	3cm	S	30cm
7	length	of a tennis c	our	t	8 dista	an	ice driven on	a fr	eeway in 1 hour
	L	24m	D	<b>24</b> km	L	J	85 km	Α	850 m
9	thickn	ess of a nicke	el		10 heig	ht	t of a dining ta	able	<b>)</b>
	Е	20mm	0	2 mm	K	(	75 mm	S	75 cm
11	length	of an autom	obil	е	(12) leng	th	of a maratho	n ra	ace
	Т	5 m	S	50m	Т	-	400 m	F	<b>40</b> km
13	width	of a dollar bill			14) leng	th	of a sheet of	typ	ing paper
	Ν	66 cm	Р	66 mm	C	)	28cm	R	28 mm
15	height	t of a door			16) dista	an	ice from New	Yo	rk to Los Angeles
	М	20 cm	В	2 m	D	)	450 km	Т	4,500 km

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

**T** 4,500 km

# Mea ring L

# Seginents With a Ruler

**D-8** 

# 

## Cryptic Quiz

1. What did the duck say to the store clerk when buying chapstick?

7.3 5.4 13.6 228 232 8 5.4 228 1.2 71 228 4.6 107 17.4 61 15.7 54 224 42 71 5.0 5.0

2. Why didn't Noah catch many fish during the voyage of the ark?

136 0.8 15.0 136 65 7.1 118 107 17.4 5.0 54 6.9 228 113 107 47 113 107 5.9 15.7 13.6

For each exercise, measure the line segment to the nearest millimeter. Express the measurement in millimeters or centimeters, as indicated, and find your answer in the code. Each time the answer appears, write the letter of the exercise above it.

 $\overline{(U)}$  length of  $\overline{AB} = \underline{\qquad}$  cm

(R) length of  $\overline{BD} =$ \_\_\_\_\_cm

(J) length of  $\overline{CF} = \underline{\hspace{1cm}} cm$ 

Н

- (Y) length of  $\overline{AB} = \underline{\hspace{1cm}}$  mm
- (N) length of  $\overline{BH} =$ \_\_\_\_\_ cm

(M) length of  $\overline{CH} =$ \_\_\_\_\_ cm

(D) length of  $\overline{AC} = \underline{\hspace{1cm}}$  cm

(E) length of  $\overline{EF} =$ \_\_\_\_\_ cm

(L) length of  $\overline{GH} = \underline{\hspace{1cm}}$  cm

 $\overline{\mathsf{I}}$  length of  $\overline{AC} = \underline{\hspace{1cm}}$  mm

- P length of *EF* = \_\_\_\_\_mm
- (B) length of  $\overline{EG} = \underline{\hspace{1cm}}$  mm

(S) length of  $\overline{AE} =$  cm

(A) length of  $\overline{DG} = \underline{\hspace{1cm}}$  mm

(W) length of  $\overline{AD} = \underline{\hspace{1cm}}$  mm

- $\overline{(H)}$  length of  $\overline{AE} = \underline{\qquad}$  mm
- (O) length of  $\overline{CG} = \underline{\hspace{1cm}}$  mm
- $\overline{T}$  length of  $\overline{AH} = \underline{\hspace{1cm}}$  mm

### Why Are Scales Like Roadmaps?

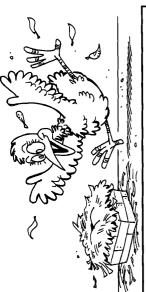
Do each exercise and find your answer in the set of answers to the right, Write the letter of the answer in the box containing the number of the exercise. If the answer has a , shade in the box instead of writing a letter in it.

I. Ans	swer eac	h que	estion	 ).								•			, .	
	many m				?	<del></del>		_				Ansv	wers	1 - 3	:	
1 How 2 How 3 How II. Cor 4 2.75 5 8.3 r 6 41.9 7 6.25 8 1.87 9 27.5 10 0.4 r	<b>many</b> c	m are	e in <b>1</b>	m?				-			(T)	10		$\bigoplus$	100	
3 How	<b>many</b> m	n are	in 1 l	km?				-			E	1,00	0	R	10,0	000
II. Cor	mplete ea	ach s	taten	nent.	You	are c	hang	ing e	ach r	neas	ure t	o a sı	malle	r unit		
4 2.75	m =_	<del></del>		cn	า							Ansv	vers 4	<b>4</b> 11		
5 8.3 1	m = _			cn	า						U	3,66	6	S	27,5	500
6 41.9	) cm =_			mr	m						R	6,25	0	E	830	
7 6.25	cm =_			mı	m							419		(K)	2.75	5
8 1.87	'5 km = _			m							T	40		G	1,87	75
9 27.5	km =_			m							$\bigcirc$	275		D	41,9	900
10 0.4 r	n =_			cm	1							18.7	5	(H)	62.5	5
11) 3.66	6 m = _			dn	1							36.6	6	(C)	4,00	00
III. Con	nplete ea	ach s	tatem	nent.	You a	are c	hang	ing e	ach r	neas	ure t	o a la	rger	unit.		
12) 12.5	mm = _			cm	า							Answ	ers 1	2 – 1	9:	
(13) 94 m	ım =_			cm	ı						$\bigoplus$	0.37	5	$\bigcirc$ R	0.09	<del>)</del> 4
<b>14</b> ) 375	m =_			km	า					ı	Q	0.25		$\bigcirc$	5	
(15) 88 m	ı =_		_	km	1					ĺ	P	500		0	1.25	5
<b>16</b> 643	cm =_			m								6.43		E	0.08	_
<b>17</b> 2.5 c	cm =_			m						,	H	2.5			37.5	;
18) 250	mm =_			dn	า					ı	Y	9.4		Ü	0.06	543
<ul> <li>(16) 643</li> <li>(17) 2.5 c</li> <li>(18) 250</li> <li>(19) 5,00</li> </ul>	0 m =_			km	1					1	A	8.8			0.02	5 543 25
	5   13	16	9	18	12	4	6	, 1	7	15	11	19	3	17	8	14
						_										

**D-9** 

# Why Did the Hen Jump Up and Down When She Looked Into the Nest?

Complete each statement, then find your answer in the set of answers to the right. Write the letter of the exercise in the box containing the number of the answer.



(G) 3.8 m	mp=	Answers	(S) 0.08 km =hm	Answers
(T) 3.8 m	CM C	2) 380 (24) 3,800	O 0.08 km = m (	(25) 80 (13) 8,000
M 3.8 m	=	(17) 38 (5) 38,000	(G) 0.08 km = cm	3) 800 (6) 0.8
(A) 490 cm	mp=		(A) 7,400 cm = mm	
(N) 490 cm	E	26 0.49 29 0.049	(1) 7,400 cm = m	(23) 7.4 (27) 0.074
(T) 490 cm	=	(21) 4.9 (5) 49	(E) 7,400 cm = km (	(16) 74 (8) 74,000
(1) 27.5 m	=cm		(W) 60 dam =km	
(M) 27.5 m	= dam	26 2.75 20 2,750	G 60 dam =m	4 0.6 28 60,000
(N) 27.5 m	=km	(25) 275 (9) 0.0275	(N) 60 dam = cm	(12) 600 (7) 6,000
H) 9.3 dm	mm =		(E) 1,000 mm = cm	
mb 6.9 (l)	mo	008,8 (8) 9,300	(S) 1,000 mm = m	(15) 1 (23) 10
(G) 9.3 dm	E	(22) 0.93 (18) 930	(T) 1,000 mm =km	(1) 100 (19) 0.001

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### What Did the Finger Say to the Thumb?

Choose the correct answer for each exercise. Write the letter of the answer in the box containing the number of the exercise. The table below may help you.

Unit	Approximate Size
1 milliliter (mL) 1 liter (L) 1 kiloliter (kL)	capacity of an eyedropper capacity of a juice carton capacity of 4 bathtubs

l.	Choose the more reasonable estimate of ca	pacity
----	---	--------

1 a pot for cooking

**K** 2 kL **E** 2 L

2 a tablespoon

C 15 L | 15 ml

3 an automobile gas tank N 50 L P 5 kL

4 a swimming pool

A 80 L O 80 kL

5 a drinking glass
O 25mL M 250 mL

6 a water cooler jug H 20L **R** 2L

II. Complete each statement.

7) 8.5 L = \_\_\_\_\_mL

8) 0.4 L = \_\_\_\_\_mL

9) 90,000 mL = \_\_\_\_L

(10) 250 mL = \_\_\_\_\_ L

(11) 1.75 kL = \_\_\_\_\_L

(12) 40 kL = \_\_\_\_\_ L

(13) 750 L = \_\_\_\_\_ kL

(14) 3,200 L = \_\_\_\_\_ kL

Answers 7 - 14:

**B** 25 **Y** 90

**U** 1,750 **W** 40,000

O 8,500 F 32

**D** 4,000 **I** 0.75

**S** 900 **R** 175

**G** 0.25 **I** 400

**T** 3.2

**U** 7.5

III. Solve. Answers 15 – 16:

Ms. Sparkle bought **12** cans of diet soda. Each can contained 350 mL. How many liters of soda did she buy?

R 48 **V 4.2** 

Chef Pierre made 6.4 L of creamed carrot soup. If it is served in 200-mL cups, how many cups can be filled? L 32 **N** 5.4

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

### What Do Salmon and Cod Use When They Go to War?

Choose the correct answer for each exercise. Find the letter of the answer 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. The table below may help you.



Unit	Approximate Size
1 milligram (mg)	mass (weight) of a grain of sand
1 gram (g)	mass (weight) of a paperclip
1 kilogram (kg)	mass (weight) of a math textbook



- I. Choose the more reasonable estimate of weight.
- a nickel
  - (M) 5 g
- (N) 5 kg
- (2) a postage stamp
- 60 g (Y) 60 mg
- (3) a bowling ball
  - B) 7 kg
    - ) 70 ka

- (4) a lemon
  - ) 12 g
- 120 g
- (5) a 12-year-old child
  - 40 kg (1) 4 kg
- a postcard (6)
  - ) 75 g (G) 750 mg

- II. Complete each statement.
- 6.5 g
- = mg 0.8 g
- $4,900 \text{ mg} = ____g$
- 133 mg = \_\_\_\_\_ g
- 7.25 kg
- 60 kg
- 250 g = \_\_\_\_ kg
- $80,000 g = ____ kg$

### **Answers 7 – 14:**

- 490
- 0.133
- 800
- 60,000
- 725
- 6,500
- 2.5
- 13.3
- 4.9
- 7,250
- 0.6
- 80
- 0.25
- 65

### III. Solve.

- (15) An average orange weighs 270 g. How many kilograms does a bag of 8 oranges weigh?
- (16) A vitamin tablet weighs 1.2g. It contains 150 mg of Vitamin C and 250 mg of B Complex vitamins. How many milligrams of other ingredients are in the tablet?

### Answers 15 - 16:

- 1.96
- 800
- 920
- 2.16

BRYLFEGOIPMCSODHWTRBGALONZUKVESJ

Answer to puzzle:

# Why Did the Ice Skater Tell Jokes While Performing?

Do each exercise and find your answer in the set of answers to the right. Write the letter of the answer in each box containing the number of the exercise. If ), shade in each box containing that exercise number. the answer has a (



Answers 1 – 10:

400 8

309

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Ö

830 mg =

(N

9

- 40,000  $\mathbf{Z}$
- 27,500
- 0.0309  $\bigcirc$ 

  - ≶
- 83
  - (F)
- 8,300 9.9

2.75

0

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2,750 g =

4

 $0.66 \, \text{kL} =$ 

9

- 275  $\overline{\mathbf{z}}$

- 3,090 99 (D  $\bigcirc$

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3.09 L =

(w

- 0.83 (E)
- Answers 11 16:
- (B) 8.4 5.8 (O
- (R) 1.416 P) 840
  - (s) 700 230  $\overline{z}$
- (H 620

280

- (H) 7.8
- (L) 1.606750 6.3

0

- Complete each statement.
- D 8.3 kg =
- шg 27.5 g = 1

(E)

<u>8</u> 4,000,000 mg =

2

- 궄 66,000 mL = 30.9 L =
- (10) 0.04 KL =

- 딜
- A large can of frozen orange juice contains 354 ml. To make orange juice, you add 3 full cans of water. How many liters of orange juice does this make? (2)

<u>8</u>

pickles. There are 12 jars in a case. How many kilograms of pickles are in a case?

A jar of sweet pickles contains 650 g of

Mrs. Sipp has 4.6 L of lemonade to serve many milliliters should she pour into each her son's 20 birthday guests. About how 4

make a cal

☐ How many grams of sequins

were left?

sequins to Take a crown and \*00 gto

A costume II∜signer bought 1'⊀kg of

(E)

colorful serOns: She used 250 g of

- weighs 0.2 kg and each sheet of paper ABC Corporation is mailing a report to weighs 5 g, how much does the report and 100 sheets of paper. If the cover (9)
- stockholders. The report includes a cover

II. Solve.

 $\Xi$ 

6

(<del>1</del>2)

gasoline. A lawnmower fuel tank that holds

1.4 L has been filled 8 times from the

A gasoline can was filled with 17.5 L of

gasoline can. How much gasoline is left in

the can?

ш	14 min 30 s
S	1; 55
Œ	15 min 26 s
¥	3 d 15 h
>	420
z	3 min 28 s
0	6 h 28 min
B	3
≥	6 h 15 min
I	4 min 40 s
0	3,920
O	72
Ω	240
ш	2 d 17 h
В	3 min 42 s
⊃	1; 20
×	12 h 28 min
⋖	9 h 51 min
⊢	310
Z	12 h 42 min
ш	14 min 56 s
<u>α</u>	9
0	4,320
Œ	11 h
-	10 h 58 min
I	150
S	6 h 40 min
∢	2; 15

# What Should You Study to Learn How to be a Cowboy?

Cross out the letter next to each correct **answer**. When you finish, the answer to the title question will remain.

- I. Complete each statement.
- (1) 4 h = \_\_\_\_ min
- (2) 7 min = \_\_\_\_\_sec
- (3) 2 h 30 min = \_\_\_\_ min
- 4 5 min 10 sec = \_\_\_\_ sec
- (5) 180 min = \_\_\_\_ h
- (6) 540 sec = \_\_\_\_ min
- 7 80 min = \_\_\_\_ h \_\_\_\_ min
- 8 135 sec = \_\_\_\_ min \_\_\_\_ sec

9 3 d = \_\_\_\_h

- (10) 3 d = \_\_\_\_ min
- II. Add or subtract. Simplify if possible.
- 2 h 30 min + 3 h 45 min
- 12) 5 min 40 s + 8 min 50 s
- (13) 7 h 8min + 2 h 43 min

- (14) 8 min 10 s - 3 min 30 s
- 15 12 h 25 min - 5 h 45 min
- (16) 32 min 50 s - 17 min 24 s

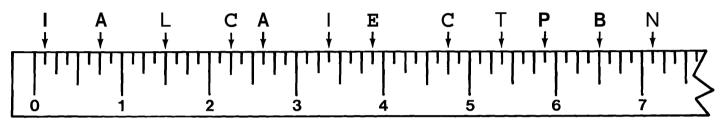
- 17) 6 h 47 min + 4 h 13 min
- 18) 9 min - 5 min 32 s
- 19 28 14 h

- III. Solve.
- 20 It takes 15 h 20 min to travel from Los Angeles to Salt Lake City by train. It takes only 2 h 38 min to fly between the two cities. How much longer does the train take?

### What Has Four Legs and Flies?

This title question has TWO different answers. Part I gives you one answer and Part II gives you the other. Follow the directions for each part.

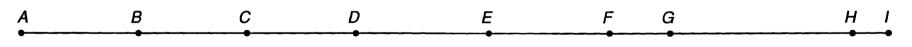
**I.** Identify each measurement that is marked with a letter. Write each letter in the box that contains the corresponding measurement.





$2\frac{5}{8}$ in. $5\frac{1}{2}$	in. $5\frac{7}{8}$ in.	$\frac{1}{8}$ in.	$4\frac{3}{4}$ in.	$7\frac{1}{8}$ in.	$3\frac{3}{8}$ in.	$2\frac{1}{4}$ in.	$6\frac{3}{4}$ in.	$5\frac{3}{8}$ in.	$\frac{3}{4}$ in.	$6\frac{1}{2}$ in.	$1\frac{1}{2}$ in.	$3\frac{7}{8}$ in.
			1								<b>!</b>	[ {

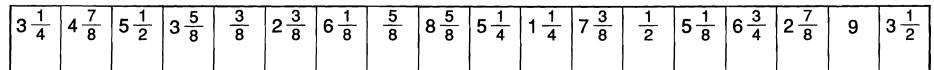
II. For each exercise, measure the line segment to the nearest  $\frac{1}{8}$  inch. Write the letter of the exercise in the box containing the measurement.



- (O)  $\overline{AB}$  \_\_\_\_\_in.
- (A) *AC* \_\_\_\_\_in
- S *AD*\_\_\_\_in.
- (W) *ĀE* \_\_\_\_\_ in.

- $\overline{A}$   $\overline{AG}$  in.
- (S) *AH* \_\_\_\_\_in.
- (T) *AI* \_\_\_\_\_in.
- $\bigcirc$   $\overline{BG}$  \_\_\_\_\_ in.
- F <u>BH</u>\_\_\_\_in

- (T) <u>DG</u>\_\_\_\_in.
- (P) *DH* \_\_\_\_\_ in.
- $oxed{\mathsf{R}}$   $oxed{\mathsf{FG}}$  \_\_\_\_\_ in.
- (N) *FI* \_\_\_\_\_in
- $igoplus \overline{HI}$  \_\_\_\_\_in.



### Why Do Elephants Lift Weights?

Measure each line segment below to the nearest one-eighth inch. Find your answer in the answer column. Write the letter of the exercise in the box containing the number of the answer.

- E ----
- (T) \_\_\_\_\_
- (R) ———
- (H) ————
- (E) ————
- (T)
- <u>A</u>
- E ----
- ① ———
- (H) ———
- T -----
- (X) ———

- (G) ———
- (T) -----
- (s) ———

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

- (1)  $3\frac{7}{8}$  in.
- (2)  $2\frac{7}{8}$  in.
- $3\frac{7}{8}$  in.
- $4) 5\frac{1}{4}$  in.
- (5)  $4\frac{1}{4}$  in.
- $6) 4\frac{3}{8}$  in.
- $7 \ 3\frac{1}{8} \text{ in.}$
- $8) 5\frac{1}{8} in.$
- 9  $3\frac{5}{8}$  in.
- $\bigcirc 10 \frac{3}{4}$  in.
- (11)  $2\frac{1}{2}$  in.
- (12)  $1\frac{5}{8}$  in.
- $\frac{3}{8}$  in.
- $1\frac{3}{4}$  in.
- 15)  $4\frac{1}{2}$  in.
- $16) 2\frac{5}{8}$  in.
- (17) 2 in.
- (18)  $4\frac{3}{4}$  in.
- (19)  $3\frac{3}{8}$  in.

### Measure with Pleasure

Follow the directions below. When you complete each step, put an  $\times$  in front of it. Measure carefully and you will get the picture!

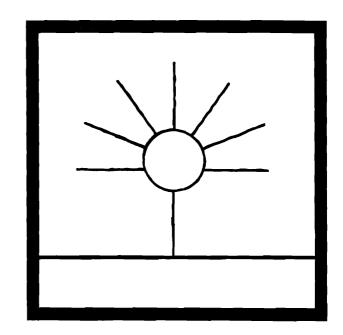
- 1. Copy rectangle ABCD on another sheet of paper. The rectangle is 7 in. wide and  $9\frac{1}{2}$  in. high.
- \_\_\_\_ 2. Place your ruler on  $\overline{AB}$ . Measure  $3\frac{1}{8}$  in. across from Point **A.** Make a dot to mark this point. Label it Point E
- \_\_\_\_ 3. Place your ruler on  $\overline{BC}$ . Measure down  $1\frac{1}{4}$  in. from Point B. Make a dot to mark this point. Label it Point F.
- **4.** On  $\overline{BC}$ , measure down  $5\frac{7}{8}$  in. from B. Label this Point G.
- \_\_\_ 5. Point H is on  $\overline{BC}$ ,  $7\frac{3}{8}$  in. from B.
- \_\_\_ 6. Point I is on  $\overline{BC}$ ,  $8\frac{3}{8}$  in. from B.
- \_\_\_\_ 7. Point Jis on AD, 7 in. from A. Connect points Hand J.
- **8.** Point K is on  $\overline{AD}$ ,  $8\frac{1}{2}$  in. from A. Connect points  $\blacksquare$  and K.
- 9. Point L is on  $\overline{JH}$ ,  $3\frac{1}{8}$  in. from J. Draw  $\overline{EL}$ .
- \_\_\_\_10. Point M is on  $\overline{EL}$ ,  $\frac{7}{8}$  in. from E. Draw  $\overline{GM}$ .
- \_\_\_\_11. Point *N* is on  $\overline{AD}$ ,  $5\frac{3}{4}$  in. from A. Draw  $\overline{MN}$ .
- \_\_\_\_12. Line up your ruler on Points E and F. Mark a point 1 in. from E and label it Point O. Connect points E and O.
- **\_\_\_13.** Point P is on  $\overline{EL}$ ,  $\frac{5}{8}$  in. from E. Draw  $\overline{OP}$ .
- **\_\_\_14.** Point Q is on  $\overline{EL}$ ,  $6\frac{1}{4}$  in. from E. Draw  $\overline{GQ}$ .
- \_\_\_15. Point R is on  $\overline{EL}$ ,  $6\frac{5}{8}$  in. from E. Draw  $\overline{NR}$ .
- \_\_\_\_16. Point S is on  $\overline{NR}$ ,  $2\frac{3}{4}$  in. from N Draw  $\overline{MS}$ .
- \_\_\_\_17. Point Tis on  $\overline{KI}$ ,  $1\frac{1}{8}$  in. from K. Draw  $\overline{JT}$ .
- **\_\_\_18.** Point *U* is on  $\overline{KI}$ , 6 in. from *K*. Draw  $\overline{HU}$ .

D

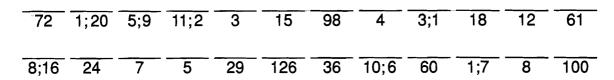
# What Is the Title?

TO FIND THE TITLE OF THIS PICTURE:

Do each exercise below. Find your answer in the code and write the letter of the exercise above it. (Each answer appears only once.)



### **CODED TITLE:**



- I. Answer each question.
- N How many inches are in 1 foot?
- E How many feet are in 1 yard?
- D How many inches are in 1 yard?

- II. Complete each statement. You are changing each measure to a smaller unit.
- (A) 2 ft = \_\_\_\_ in.
- (T) 5 ft = \_\_\_\_ in.
- () 1 ft 6 in. = \_\_\_\_ in.
- (D) 8 ft 4 in. = \_\_\_\_ in.
- (R) 5 yd = \_\_\_\_ ft
- (A) 9 yd 2 ft = \_\_\_\_ ft
- (G) 20 yd 1 ft=\_\_\_\_ft
- (s) 2 yd = \_\_\_\_ in.
- (N) 3 yd 18 in. = \_\_\_\_ in.

- III. Complete each statement. You are changing each measure to a larger unit.
- (D) 48 in. = \_\_\_\_\_ ft
- (A) 19 in. = \_\_\_\_\_ ft \_\_\_\_ in.
- (i) 69 in. = \_\_\_\_\_ ft \_\_\_\_ in.
- (N) 24 ft = \_\_\_\_ yd
- (ii) 10 ft = \_\_\_\_\_ yd \_\_\_\_\_ ft
- (D) 35 ft = \_\_\_\_\_ yd \_\_\_\_\_ ft
- (H) 180 in. = \_\_\_\_\_ yd
- (P) 56 in. = \_\_\_\_\_ yd \_\_\_\_ in.
- (S) 366 in. = \_\_\_\_\_ yd \_\_\_\_ in.

### What Did Airhead Klutz Look For When He First Took Up Waterskiing?

Find each answer in the set of boxes under the exercise. Write the letter of the exercise in the space above the answer.

I. Complete each statement.

$$(T)$$
 8 yd = \_\_\_\_ft

(H) 
$$2\frac{1}{2}$$
 ft = \_\_\_\_ in. (L)  $7\frac{2}{3}$  yd = \_\_\_\_ ft

$$\int 7\frac{2}{3} \text{ yd} = ____ \text{ft}$$

(K) A baseball diamond is a square with 90 feet between bases. About how many yards does a player run after hitting a home run?

yd

3;4	28	33;1	144	58	2	140	23	123	120	17	9;1	5	84	24	30

II. Add or subtract. Simplify if possible.

# Why Did the Young Actress Stuff Her Autograph Into Bottles & that Low-Calorie Cola?



Find each answer in the appropriate set of boxes at the bottom of the page. Write the letter of the exercise in the box containing the answer.

- I. Complete each statement. You are changing each measure to a smaller unit.
- (E) 5 gal = \_\_\_\_ qt
- (T) 9 gal = \_\_\_\_ qt
- $\bigcirc$  2 qt = \_\_\_\_ pt
- (A) 15 qt = \_\_\_\_ pt
- (E) 1 pt = \_\_\_\_\_ c
- (D) 7 pt = \_\_\_\_ c
- (S) 3 c = \_\_\_\_ fl oz
- (T) 10 c = \_\_\_\_ fl oz
- (E) 1 gai 2 qt = \_\_\_\_ qt
- (S) 6 gal 3 qt = \_\_\_\_ qt
- (W) 4 pt 1 c = \_\_\_\_ c
- (H) 1 gal = \_\_\_\_ pt
- (E) 1 pt = \_\_\_\_ fl oz
- (N) 1 qt = \_\_\_\_ fl oz

- II. Complete each statement. You are changing each measure to a larger unit.
- (N) 12 qt = \_\_\_\_ gal
- (E) 40 qt = \_\_\_\_ gal
- (S) 8 pt = \_\_\_\_ qt
- (A)  $24 \text{ pt} = ___ \text{qt}$
- (I) 10 c = \_\_\_\_ pt
- (R) 18 c = \_\_\_\_ pt
- (E) 16 fl oz = \_\_\_\_ c
- (M) 64 fl oz = \_\_\_\_ c
- $\bigcirc$  7 qt = \_\_\_\_ qt
- (H) 30 qt = \_\_\_\_ gal \_\_\_ qt
- (E) 9 pt = \_\_\_\_ pt
- (L) 25 c = \_\_\_\_ pt \_\_\_ c
- (N) 12 fl oz = \_\_\_\_ c \_\_\_ fl oz
- (T) 50 fl oz = \_\_\_\_ c \_\_\_ fl oz

### Answers for Column I

	24	8	20	15	9	30	32	36	6	14	12	80	4	48	27	16	2
_	An	swer	s for (	Colur	nn II												

### Did You Hear About...

Α	В	С	D	E	F	G	Н	I	J	K	L	
М	N	0	Р	Q	R	S	Т	U	V	W	X	?

Answers A - L:

SAID

19 THE

75 TO

WHO

HE

224 BECAUSE

THE 12

**RIGHT** 

**THAT** 

GOING 32

DRIVER

WAY 28

180 ON

**WAS** 

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

I. Complete each statement.

$$(A)$$
 3 gal = \_\_\_\_ qt

$$\bigcirc$$
 5 qt = \_\_\_\_ pt

$$\bigcirc$$
 6 c = \_\_\_\_ fl oz

$$(E) \frac{1}{2} \text{ gal} = 0$$

① 
$$6 c = ___ floz$$
 ②  $E = __ c$ 

$$(J) 7 qt = ___ pt$$
  $(K) 7 qt = ___ c$   $(L) 7 qt = ___ fl oz$ 

$$(M)$$
 20 qt = \_\_\_\_ gal

$$(T)$$
 60 c = \_\_\_\_ qt

II. Solve.

- Mr. Fizz bought 6 cans of root beer. Each can contained 12 fl oz. How many cups of root beer did he buy?
- A certain paint is sold in both 1-gal cans and 1-gt cans. The gallon can costs \$13 and the quart can costs \$5. How much do you save per gallon by buying the larger cans?
- Mrs. Ramirez bought 2 qt of orange juice. If the juice is served in 6-oz glasses, how many glasses can be completely filled?

Answers M - X:

ONLY 2:1 THEN

6 LEFT

12;4 THE 13 GOING

**RIGHT** 

15 IS

7 WAY

5 IF 2 IS

10 LEFT

9:6 A

3 RIGHT

**18 NOT** 

# What Did They Call the Guy Who Made 367 Mistakes While Typing One Page?

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.

I. Complete each statement.

$$(5) \frac{1}{2} lb = ____ oz$$

II. Solve.

- (15) How many ounces of meat are used to make a  $\frac{1}{4}$ -lb hamburger? \_\_\_\_ oz
- for mailing. Each ball weighed 5 oz and the box weighed 9 oz. Find the total weight of the package in pounds and ounces.

- (2) 2 lb 12 oz = \_\_\_\_ oz
- (4) 10 lb 3 oz = \_\_\_\_ oz

$$(6)$$
 3 T = \_\_\_\_ lb

(8) 
$$4\frac{1}{2}$$
 T = \_\_\_\_\_ lb

- 17) There are 30 students in a math class with an average weight of 92 lb per student.
  - **A.** What is the combined weight of all the students in the class? \_\_\_\_\_ **lb**
  - B. How much more than a ton is this?

TH	AT	OP	EB	AD	TR	YP	ОТ
4;5	7	2;10	44	6,000	760	2,400	2;1,600
LO	GR	EW	IT	ON	ТО	ST	RO
163	4	7;2	9,000	6;4	80	2,760	400
SO	NG	BE	PA	GE	ER	EN	UP
3	3;800	32,000	56	8	28,000	5	2,700

# Why Couldn't the Astronaut Make Cinnamon Toast?

Do each exercise and find your answer in the set of answers to the right. Write the letter of the answer in each box containing the number of the exercise. If ), shade in each box containing that exercise number. the answer has a



# Complete each statement.

₽

$$5) 10 c = 10 c$$

70

11) There are 2 tablespoons in a fluid ounce.

How many tablespoons are in a cup?

$$\begin{pmatrix} 4 & 2\frac{1}{4} \text{ T} = \frac{1}{4} \\ 6 & 3 \text{ et } = \frac{1}{4} \\ 8 & 100,000 \text{ lb} \end{pmatrix}$$

fl oz

pt

144

5;8

H

(v)

80

4,800

50

 $\Xi$ 

S

38

 $\sum_{i=1}^{n}$ 

Ш

 $5\frac{1}{2}$  pt :

96

 $\overline{A}$ 

# Answers 11 – 16:

70

amount she ate in pounds and ounces.

frankfurter weighed 2 oz, find the total

tbs

rented a huge jug and filled it with 20 gal

For the big family picnic, Mr. Lincoln

(13)

of lemonade. If each person drank 1

how many people could be served?

(12) Linda Kuerth set a record by eating 23

frankfurters in 3 min 10 s. If each

2;14

ಹ

American teenager eats 1,817 lb of food

(14) According to one study, the average

year. How much less than a ton is this?

൧

12

orth \$500 a	and were	how much	н
) In a recent year gold was worth \$500 a	ounce. If you weighed 100 lb and were	"worth your weight in gold," how much	would you be worth?
	`		

vorth \$500 an	lb and were	" how much	ક
(16) In a recent year gold was worth \$500 an	ounce. If you weighed 100 lb and were	"worth your weight in gold," how much	would vou be worth?
9	)		

worth \$500 an	lb and were	" how much	ક્ક
) In a recent year gold was worth \$500 an	ounce. If you weighed 100 lb and were	"worth your weight in gold," how much	would vou be worth?
(1)	\		

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15

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Solve.

(15)

t is also sold in individual 8-oz cartons for Apple juice is sold in a 1-gal jug for \$3.30.

40¢ a carton. How much more per gallon

do you pay by buying the individual

# What Job Does the Buttermilk Biscuit Have in the Movie?

Do each exercise and find your answer in the appropriate answer box. Write the letter of the answer in the box containing the number of the exercise.

- 1 3 h 45 min + 1 h 30 min
- 2 9 min 20 s + 4 min 10s
- 3 7 h 10 min - 2 h 50 min
- 4 8min - 5 min 25 s

- 5 + 6 ft 4 in.
- 6 + 4 ft 9 in.
- 7 + 12 yd 2 ft
- 8 50 yd 1 fi

- 9 1 c 2 fl oz + 2 c 5 fl oz
- 10 7 gal 3 qt + 6 gal 3 qt
- 11) 3 qt **I** pt + 5 qt 1 pt
- 12) 20 gal - 4 gal 1 qt

- (13) 8 lb 9 oz + 30 lb 9 oz
- 9 lb - 2 lb 10 oz
- 15) 4 T 1,500 lb + 7 T 800 lb
- 6 lb 8 oz - 5 lb 12 oz

- To power an experimental car, Willy Messerschmitt mixed 12 gal 3 qt of gasoline with 4 gal 2 qt of ethyl alcohol. How much fuel did this make?
- (18) The average 12-year-old in the U.S. weighs 85 lb 12 oz. The average 14-year-old weighs 108 lb 2 oz. How much weight does the average person gain during these two years?

Answers 1 - 9: 15ft 11 in. 13 min 30 s 3 min 5 s 8 ft 5 in. 41 yd 2 ft 3 c 7 fl oz 7 ft 6 in. 5 h 15 min 2 min 35 s 40 yd 1 ft 18 yd 1 ft 4 h 20 min 4 c 5 fl oz 10 3 13 1 15 9 18

Answers 10 – 18: R) 17 gal 1 qt 15 gal 3 qt 39 lb 2 oz 13 T 700 lb 21 lb 10 oz 12 T 300 lb 14 gal 2 qt 22 lb 6 oz 12 oz 9 qt 16 gal 2 qt 7 lb 2 oz 6 lb 6 oz 16 2 8 11 17 14 6

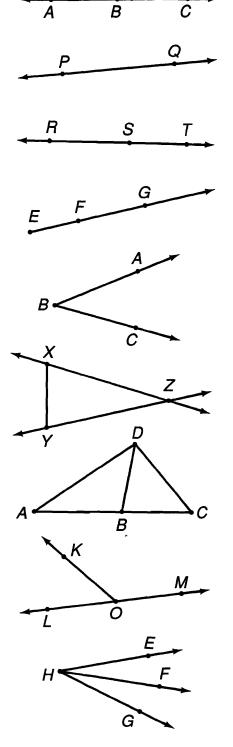
12

### What Does a Cat Need to Play Baseball?

For each exercise, circle the letter of the correct choice. Write this letter in the box containing the number of the exercise.

2	8	4	6	1	9	5	3	7
				1				}

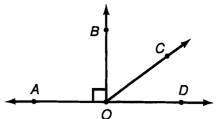
- 1) Which of the following is not a point on AC?
  - (Y) B
- (R) D
- (V) A
- 2 Which of the following is not a correct name for this line?
  - $(A) \overrightarrow{PQ}$
- (L)  $\overrightarrow{QP}$
- G FQ
- Which of the following is not the name of a segment in this figure?
  - (O) RS
- $(T) \overrightarrow{ST}$
- $\widehat{H}$   $\overline{TR}$
- Which of the following is not the name of a ray in this figure?
  - $\widehat{(W)} \overrightarrow{EG}$
- $(S) \overrightarrow{FG}$
- (U) FE
- (5) Which of the following is not a correct name for this angle?
  - (I) ∠ACB
- (Y) ∠CBA
- $(L) \angle B$
- 6 Which of the following is not the name of a line in this figure?
- $(R) \overleftrightarrow{XY}$
- (K) YZ
- Which of the following is a segment that has B as an endpoint?
  - (N)  $\overline{CD}$
- $\bigcirc$   $\overline{AC}$
- T CB
- 8 Which of the following is *not* the name of a ray in this figure?
  - $(H) \overrightarrow{MO}$
- (S)  $\overrightarrow{LM}$
- $(P) \overrightarrow{KO}$
- Which of the following is not a correct name for an angle in this figure?
  - (M) ∠H
- (A) LGHF
- (D) ∠EHG



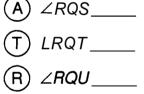
TOPIC 3-a: Basic Geometric Figures

### What Did Mrs. Claws Say During the Thunderstorm?

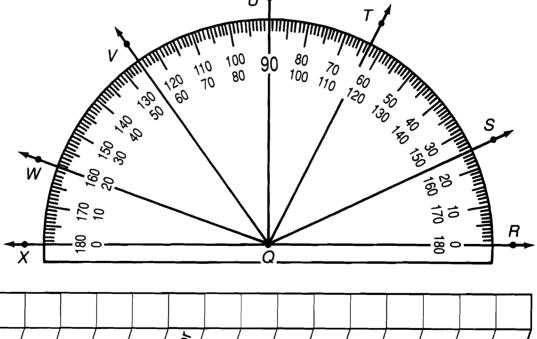
Find each answer at the bottom of the page and write the letter of the exercise above it.



- I. Complete each statement.
- The figure formed by two rays from the same endpoint is an
- The intersection of the two sides of an angle is called its
- The vertex of LCOD in the drawing above is point
- The instrument used to measure angles is called a \_\_\_\_\_\_
- The basic unit in which angles are measured is the
- LAOB has a measure of 90° and is called a \_\_\_\_\_ angle.
- An angle whose measure is between 0° and 90° is an angle.
- Two acute angles in the figure are LBOC and
- An angle whose measure is between 90" and 180° is an angle.
- An obtuse angle in the figure is
- II. Give the measure of each angle.



- ∠RQV\_\_\_\_
- LRQW\_\_\_\_
- LXQW\_\_\_\_
- LXQT\_\_\_\_
- ∠UQV\_\_\_\_

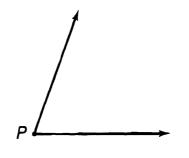


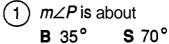
/	obtuse	Vertex	rioh:	20°	35.0	/ 8	725°	Dros.	G3°			\ / <b>\</b>	36,4	900	

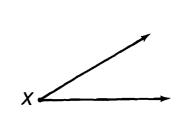
D-26

### Why Did the Brontosaurus Need Band-Aids?

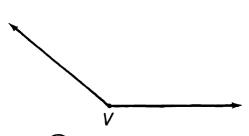
For each exercise, circle the letter of the best estimate. Write this letter in the box containing the number of the exercise.







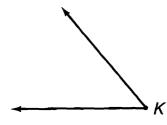
② m∠X is about
T 65° O 30°



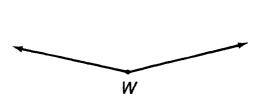
3 m∠V is about
E 140° J 95°



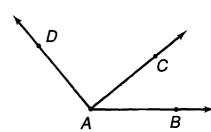
4 m∠G is aboutL 55° I 25°



5 m∠K is aboutO 50° F 80°

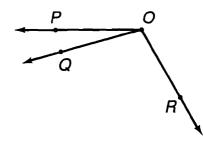


(6) *m*∠Wis about R 155° C 110°

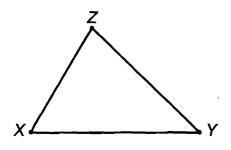


7 *m∠BAC* is about **S** 40° **P** 15°

- 8 *m∠CAD* is about **U** 65° I 90°
- (9) m∠BAD is about G 100° O 130°



- (10) *m∠POR* is about **M** 160° **F** 120°
- 11) *m∠P*OQ is about V 40° N 15°
- (12) *m∠QOR* is about **R** 105° **B** 140°



- (13) *m∠X* is about **P** 35° **H** 60°
- (14) *m∠Y* is about **S** 45° **L** 25°
- (15) *m∠Z* is about **D** 75° **G** 40°

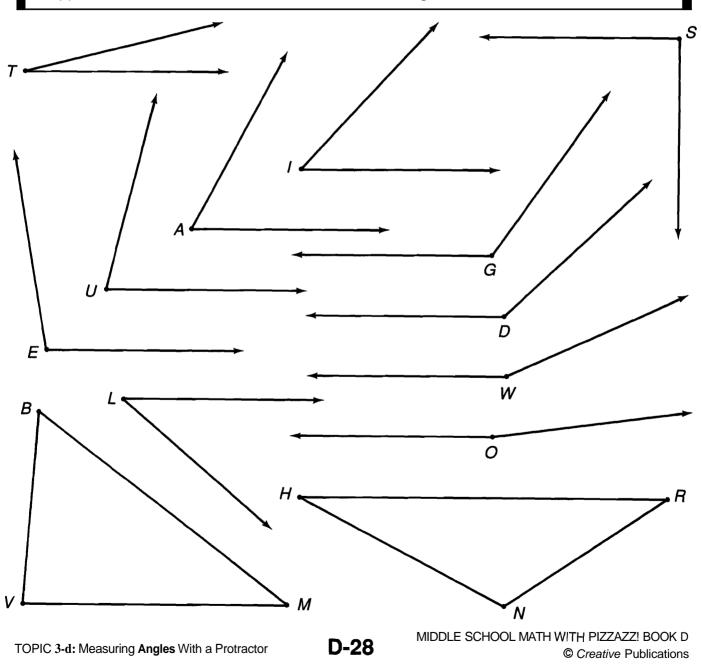
10	2	6	13	8	1	15	4	11	9	14	5	12	3	7

### **Books Never Written**

Beginning Your Exercise Program by  $\frac{}{57^{\circ} 99^{\circ} 119^{\circ}} = \frac{}{137^{\circ} 173^{\circ} 85^{\circ} 99^{\circ} 33^{\circ}}$ Checking Your Homework by  $\frac{}{33^{\circ}} = \frac{}{76^{\circ}} = \frac{}{156^{\circ} 33^{\circ} 47^{\circ} 125^{\circ} 28^{\circ} 14^{\circ}}$ How to Lead the Band by  $\frac{}{38^{\circ} 62^{\circ} 33^{\circ} 90^{\circ} 28^{\circ} 62^{\circ}} = \frac{}{41^{\circ} 173^{\circ} 119^{\circ} 125^{\circ}}$ 

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

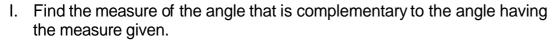
Measure each angle below and find your answer in the code. Each time the answer appears in the code, write the vertex letter of that angle above it.



### What Happens When Cupid Shoots an Arrow? Use a protractor to construct the angles below. Each side you draw will pass through a number. Write the vertex letter of the angle in the box containing this number. (8) 9 (1)(5) 60° 120° E• (4)2 139° 33° 97° (10) (2) (10)(13)6 21° 72° 16° 10 (7) 7 9 **5**) (10) 108° 154° 2 3 5 9 10 12 13 6 8 11 14

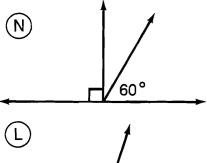
# Why Is a Party Like Pouring Oil Into a Car?

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

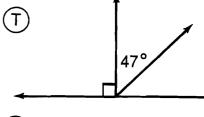


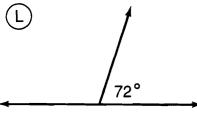
- (E) 20°
- (H) 67°
- (S) 14°
- (E) 81°
- (T) 45°
- II. Find the measure of the angle that is supplementary to the angle having the measure given.
- (R) 120°
- (E) 56°
- (I) 29°
- (U) 162°
- (H) 83°

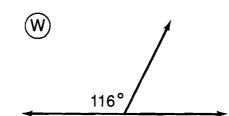
III. Find the angle measure that is not given.

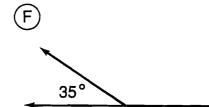


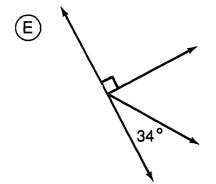
E 28°







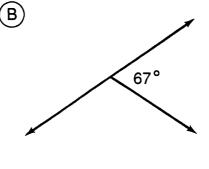




76°

151°

43°

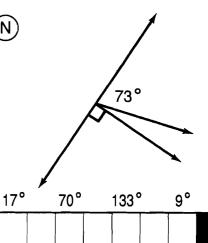


124°

37°

145°

18°



97°

64°

125°

56°

62°

60°

23°

45°

36°

30°

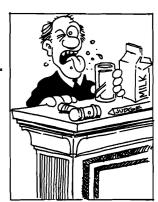
108°

113°

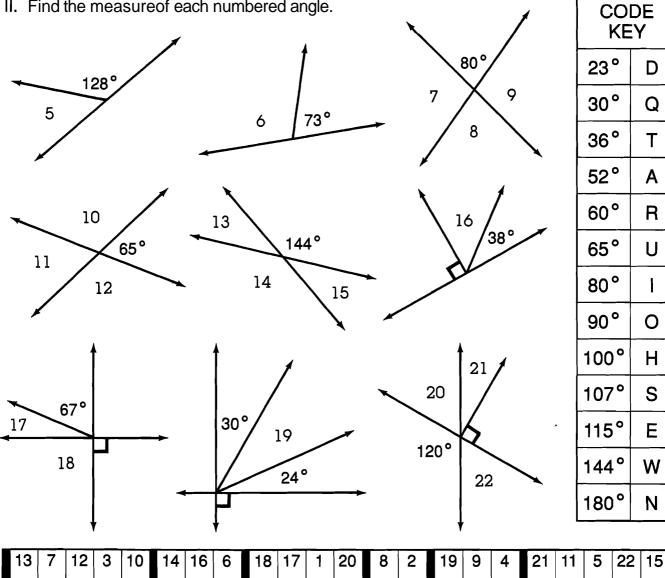
### How Did the Judge Find Out About the Rotten Milk?

Do each exercise and find your answer in the Code Key. Notice the letter next to the answer. Write this letter in the box containing the number for the exercise.

- Complete each statement.
- Two angles are *complementary* if the sum of their measures is
- Two angles are **supplementary** if the sum of their measures is
- The complement of a 30° angle has a measure of .
- The **supplement** of a **65°** angle has a measure of .



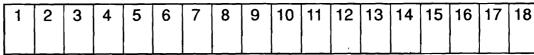
II. Find the measure of each numbered angle.



### What Is The Biggest Problem of Miners?

D

Circle the number-letter pair of each TRUE statement. For these pairs, write the letter in the matching numbered box at the right.



I. Use the figure below, in which EF (BH. You should find 11 true statements.

**7-E**  $\overrightarrow{EF}$  intersects  $\overrightarrow{AD}$  at C.

- 11-0 EB LAC
- 2-H FC HHG
- 17-E HC L DB
- 1-T EB || CH
- 3-A GG ⊥ CH
- 16-S CF BE
- 12-A  $\angle EBC$  is a right angle.
- 18-G LDCE is a right angle.
- 3-E  $m \angle HCB = 90^{\circ}$ .
- 8-T  $\angle$  *FCH* is an acute angle.
- 16-E LECHis an obtuse angle.
- 14-P  $\angle ABE$  is an acute angle.
- 4-Y Perpendicular lines intersect to form right angles.

A

E

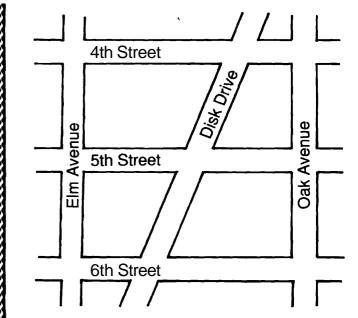
В

 $\boldsymbol{C}$ 

H

G

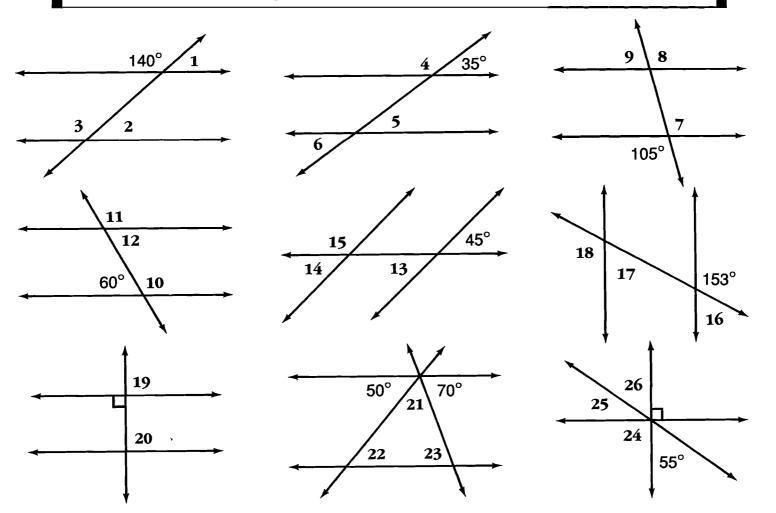
- 18-T Parallel lines never intersect.
- 6-L  $m \angle DCH = m \angle EBH$



- II. Use the figure above. You should find 4 true statements.
  - 13-L 5th Street is parallel to 6th Street.
  - 6-G 6th Street is perpendicular to Elm Avenue.
- 10-S Elm Avenue is parallel to Disk Drive.
- 4th Street and Oak Avenue intersect to form right angles.
- 9-N Elm Avenue is perpendicular to Oak Avenue.
- 10-C Elm Avenue is parallel to Oak Avenue.

### Why Couldn't the Two Elephants Go Swimming Together?

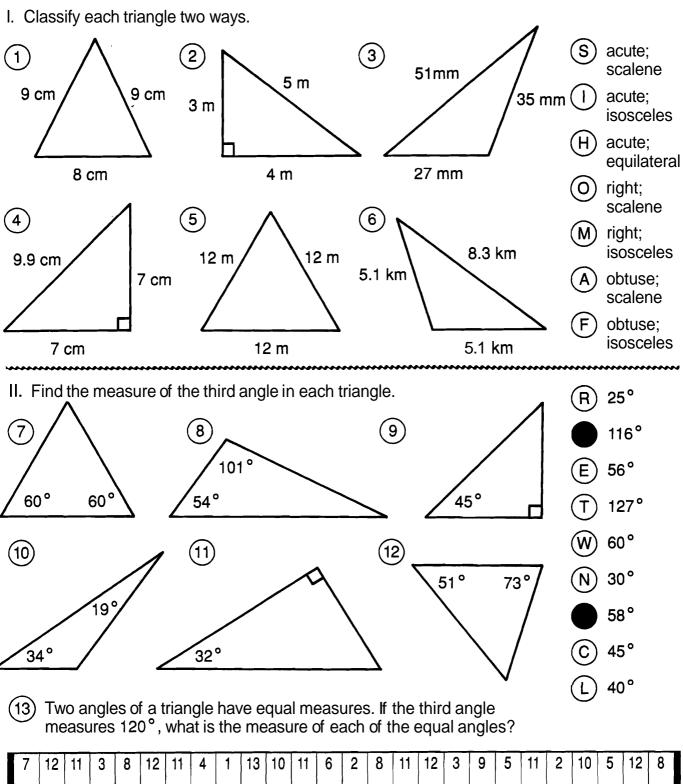
Give the measure of each numbered angle. Find your answer in the Code Key and notice the letter next to it. Write this letter in the box containing the number of the angle. (Assume that lines in each figure that do not intersect are parallel.)



CODE KEY	
27°	Α
35°	0
40°	R
45°	Υ
50°	-
55°	Р
60°	Т
70°	U
75°	F
90°	N
105°	Н
120°	Е
135°	K
140°	L
145°	S
153°	D

### What Did the Boy Candy Say to the Girl Candy?

Do each exercise and find your answer in the set of answers to the right. Write the letter of the answer in each box containing the number of the exercise. If the answer has a , shade in each box containing that exercise number.



### What Do You Get When You,,,

1. Cross two ducks with a match?

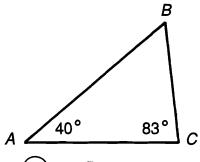
Answer:

37° 57° 99° 67° 104° 76° 59° 113° 42° 53° 67° 99° 18°

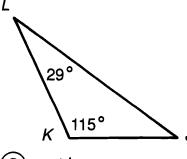
2. Cross a stick of dynamite with a lemon pie?

113° 68° 63° 34° 34° 54° 38° 54° 67° 99° 57° 90° 36° 59° 67°

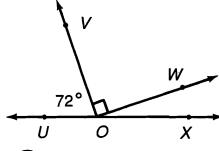
Find the angle measures indicated. Look for each answer in the code. Each time the answer appears, write the letter of the exercise above it.



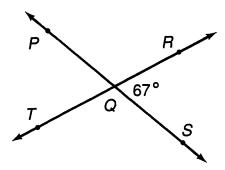




(G)  $m \angle J =$ 

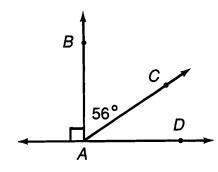


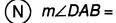
(S) m∠WOX=



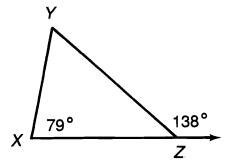
 $m\angle PQR =$ 

 $m\angle PQT =$ 

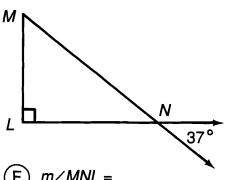




*m∠DAC* =

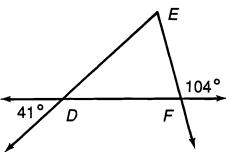


- $m\angle XZY =$
- $m \angle Y =$



 $m \angle MNL =$ 

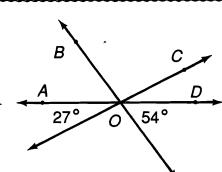
 $m \angle M =$ 



m∠EFD =

m∠E =



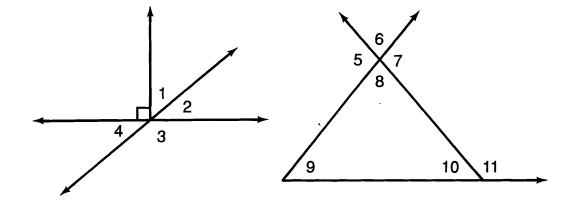


m∠AOB =

m∠BOC =

# Daffynition Decoder

For each exercise, find the angle measure indicated. Look for each answer in the code. Each time the answer appears, write the letter of the exercise above it.



Warehouse:

Explain:

- (H) If  $m \angle 1 = 50$ °, then mL2 =
- (F) If mL3 = 120°, then mL4 =
- (o) If mL2 = 35°, then  $m \angle 1 =$
- (E) If mL4 = 45°, then mL3 =
- (B) If mL6 = 29, then mL8 =
- (Y) If mL6 = 29°, then mL5 =
- (c) If mL5 = 116°, then mL7 =
- (1) If mL8 = 82°, then mL7 =
- (A) If  $m \angle 11 = 144$ , then  $m \angle 10 =$

- (N) If  $mL8 = 78^{\circ}$  and  $m \angle 9 = 60^{\circ}$ , then  $m \angle 10 =$
- (D) If  $m \angle 9 = 47^{\circ}$  and  $m \angle 10 = 33^{\circ}$ , then  $m \angle 8 =$
- (U) If  $m \angle 10 = 45^{\circ}$  and  $mL8 = 90^{\circ}$ , then  $m \angle 9 =$
- (M) If  $mL6 = 66^{\circ}$  and  $m \angle 9 = 40^{\circ}$ , then  $m \angle 10 =$
- (T) If  $m \angle 11 = 130^{\circ}$  and  $m \angle 9 = 52^{\circ}$ , then m L 8 =
- (W) If  $mL8 = 81^{\circ}$  and  $m \angle 9 = 24^{\circ}$ , then  $m \angle 11 = 10^{\circ}$
- (R) If mL2 = 56°, then mL4 =
- (L) If  $m \angle 1 = 56$ °, then  $m \angle 4 =$
- (S) If  $m \angle 1 = 56$ °, then m L 3 =

### Can a Polar Bear Go On a Safari?

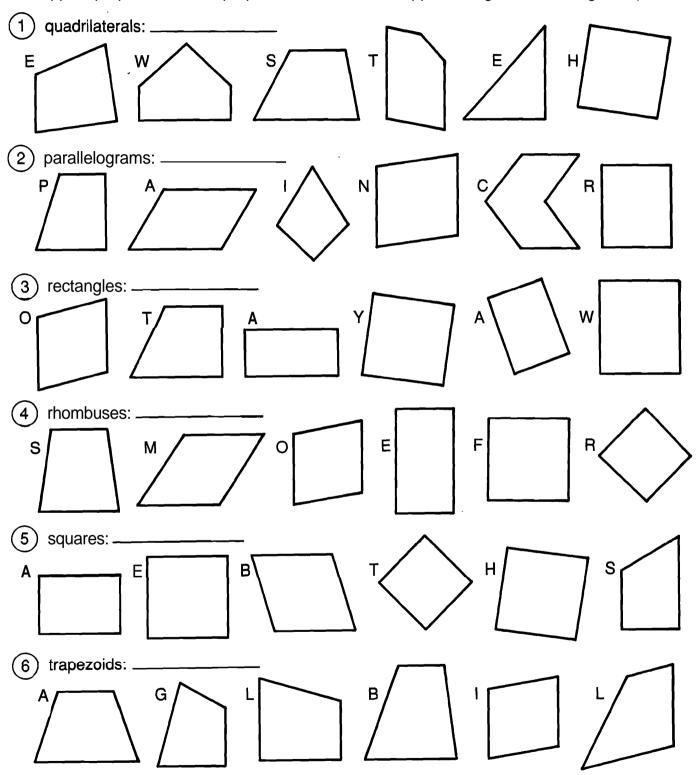
Write the name that best describes each quadrilateral. (Put each quadrilateral in the smallest or most exact class to which it belongs.) Write the letter of the exercise in

the box containing the number of the answer. (0)rectangle trapezoid square parallelogram 9 6 17 rectangle O trapezoid parallelogram rhombus  $(\mathsf{F})$ T square trapezoid parallelogram rectangle N) (R)(K)parallelogram rectangle rhombus trapezoid (16) trapezoid S (A)(N)square rectangle rhombus 11 13 14 15 16 2 3 4 5 6 7 8 9 10 12 17 18

## Why Was Cinderella Kicked Off the Baseball Team?

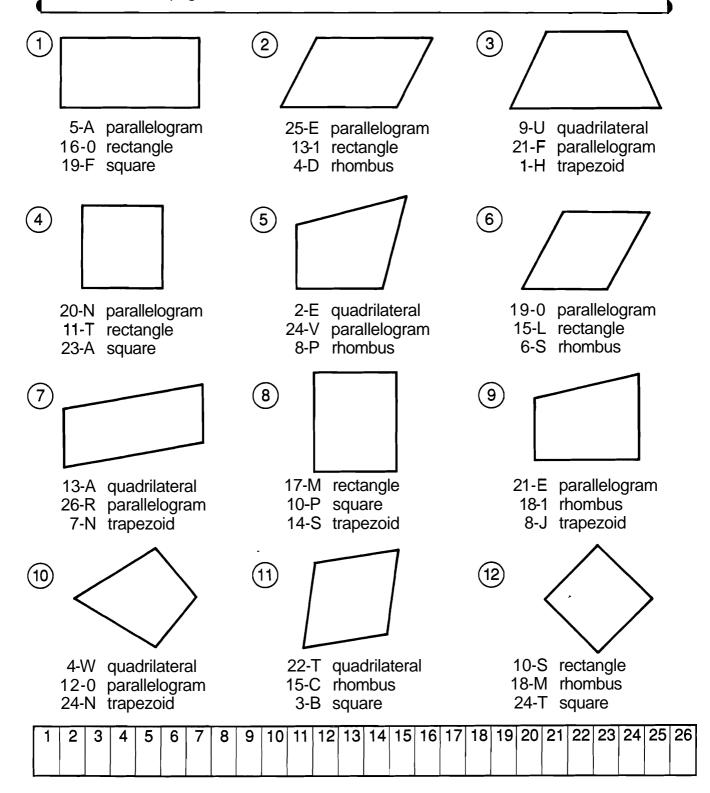
For each exercise, circle the letter of each figure that belongs in the category named. Arrange these letters to form a word. Then write this word on the line next to the name of the category.

(You may assume the following: sides that appear parallel are parallel; sides that appear perpendicular are perpendicular; sides that appear congruent are congruent.)



# Why Didn't the Snobbish Potatoes Want Their Daughter to Marry a News Broadcaster?

Under each figure, circle the number-letter combination next to each word that correctly names the figure. Write the letter in the matching numbered box at the bottom of the page.



## Why Do Ants Visit the Zoo on Cold Days?

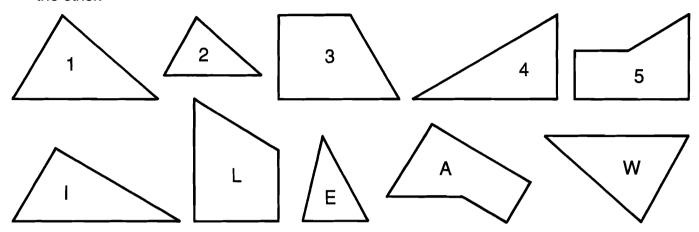
Write the word missing from each statement in the boxes next to the statement. Notice which letters are in numbered boxes. Write each of these letters in the matching numbered box at the bottom of the page.

$\begin{array}{c c} A & & \\ \hline \end{array}$					7	7	
1 A triangle is a with three sides and three angles.							6
A polygon with four sides and four angles is a 21			10				
A polygon with fivesides and five angles is a			15				
A polygon with six sides and six angles is a	11					2	
An octagon is a polygon with eight sides and eight		18				4	
6 A polygon with ten sides and ten angles is a		12					
7) In the set of figures above, Figure A							
is a	16			8			
	16		1	8			
is a	20		1 5	8			
is a 8 Figure B is an				13			
is a 8 Figure B is an 9 Figure C is a					19		
is a  8 Figure B is an  9 Figure C is a  10 Figure D is a  11 The point of intersection of two sides of			5		19		
is a  8 Figure B is an  9 Figure C is a  10 Figure D is a  11 The point of intersection of two sides of a polygon is called a  12 A line segment (not a side) connecting two		17	5				9

### Why Couldn't Orgo Buy a Round Trip Ticket?

Follow the directions for each section. Each exercise will give you a number-letter pair. Write the letter in the matching numbered box at the bottom of the page.

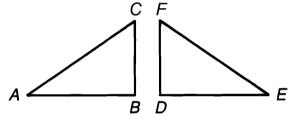
I. Find each pair of congruent figures. Use the number from one figure and the letter from the other.



II. Complete each statement, then find your answer in the answer column. Use the number of the exercise and the letter of the answer.

 $AABC \cong AEDF$ 

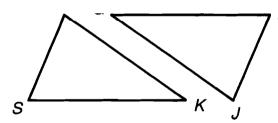
- $(6) \overline{AB} \cong$
- (9) ∠A ≅
- (7) <u>BC</u> ≅
- (10) ∠B ≅
- (8) <u>AC</u> ≅
- (11) ∠C ≅



- Answers 6 11:
- E)∠D
- $(H) \angle F$
- S) EF
- $(T) \overline{DF}$
- E) ED
- (U) ∠*E*

ASKM ≅ ANGJ

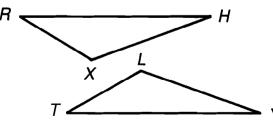
- (12) *SK* ≅
- (15) ∠S ≅
- (13) *KM* ≅
- (16) ∠K ≅
- (14) *SM* ≅
- (17) ∠M ≅



- Answers 12 17:
- S ∠J
- $\stackrel{\frown}{(E)} \overline{GJ}$
- $\mathbb{R}$   $\angle N$
- $\overline{T}$   $\overline{NJ}$ 
  - C ∠G

ARHX ≅ ATYL

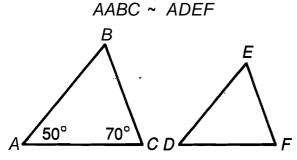
- (18) *TY* ≅
- (21) ∠T ≅
- (19) <u>VL</u> ≅
- (22) ∠Y ≅
- (20) *TL* ≅
- (23) ∠L ≅

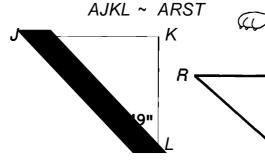


- Answers 18 23:
- $(R) \angle R \quad (K) \overline{RX}$
- (E) <del>RH</del> (T) ∠H
- $\bigcirc$   $\angle X$   $\stackrel{\frown}{\Box}$   $\overrightarrow{HX}$

# Does Any Animal **Have** More Than **9** Lives?

Give the angle measures indicated. Find each answer in the Code Key and notice the letter next to it. Write this letter in the box containing the number of the exercise.





Cod Key	
24°	С

38°

41°

46°

47°

49°

50°

60°

67°

G

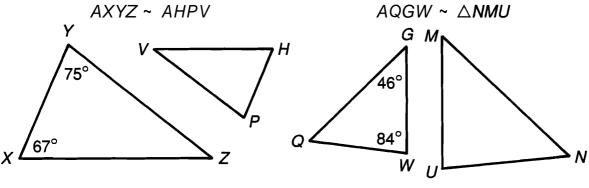
T

E

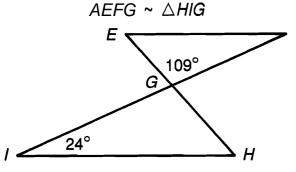
Α

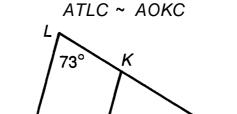
- 1.  $m \angle B =$
- 3. *m∠D* =
- 5. *m∠J* =
- 7. *m*∠*S* =

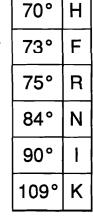
- 2. *m∠E* =
- 4.  $m \angle F =$
- 6.  $m \angle T =$
- 8. *m*∠R =



- 9.  $m \angle Z =$ 10.  $m \angle H =$
- 11.  $m \angle V =$ 12.  $m \angle P =$
- 13.  $m \angle Q =$
- 14.  $m \angle M =$
- 15. *m∠U* =
  - 16.  $m \angle N =$







- 17. *m∠IGH* =
- 19.  $m \angle F =$
- 21.  $m \angle T =$
- 23. *m∠OKC* =

32°

- 18. *m∠H* =
- 20. *m∠E* =
- 22. *m∠KOC* =
  - 16 14 3 21 9
- 18

	23	12	8	20	1
,					

# What Did the Waitress Mean When She Yelled to the Cook: "1 + 1"?

 $A \bigcirc O \bigcirc C$ 

Fill in each blank with one of the answers at the bottom of the page. Then write the letter of the exercise above its correct answer.

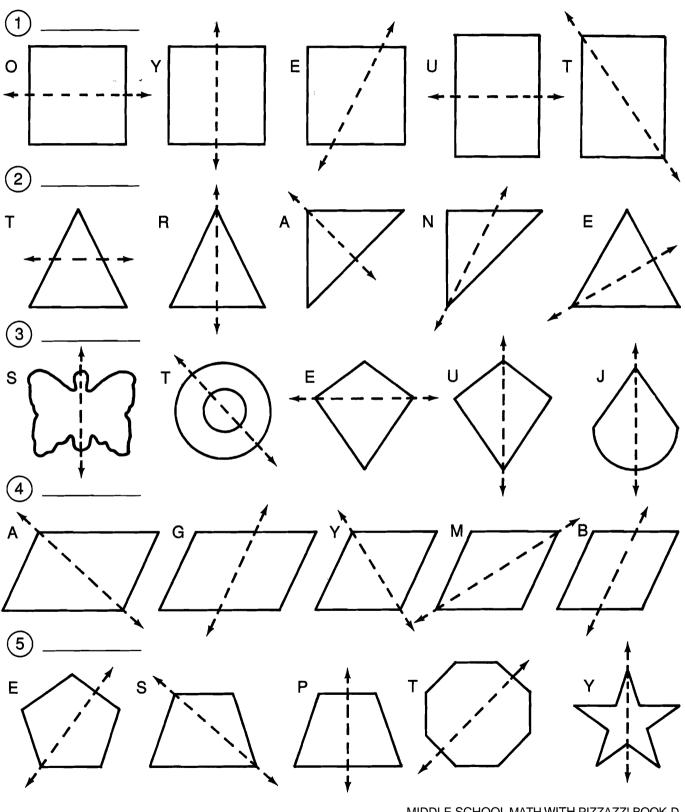
The figure at the right is a circle with center at *O*.

The points on a circle are all the same distance from the
A line segment from the center to any point on the circle is a
A line segment with both endpoints on the circle is a
A chord that passes through the center of a circle is a
A diameter of the circle in the drawing above is the segment
Which of the following is <i>not</i> a radius: $\overline{\textit{OA}}$ , $\overline{\textit{OD}}$ , or $\overline{\textit{BC}}$ ?
Which of the following is <i>not</i> a chord: $\overline{BC}$ , $\overline{OA}$ , or $\overline{AC}$ ?
Part of a circle, such as between points 5 and C, is an
An angle whose vertex is at the center of a circle is a
Which of the <b>following</b> is <i>not</i> a central angle: LAOD, LCOD, or LBCA?
Points <b>A</b> , B, <b>C</b> , and D are all the same from point <b>O</b> .
If the length of $\overline{AC}$ is 20 cm, then the length of $\overline{OC}$ is
If the length of $\overline{\textit{OA}}$ is 20 cm, then the length of $\overline{\textit{OD}}$ is
If the length of $\overline{OD}$ is 20 cm, then the length of $\overline{AC}$ is
The length of a radius is the length of a diameter.
The set of points in a plane at a fixed distance from a given point is a

10 cm	arc	center	ray	ZBCA	half	chord	OA	<i>0007</i>	AC	20 cm	central angle	<u>00</u>	diameter	distance	80 cm	radius	circle	BC	40 cm

# ♥ What Did the Secretary Say ♥ do Her Boy Friend? ♥ ♥

For each exercise, circle the letter of each figure that is divided by a line of symmetry. Arrange these letters to form a word. Then write this word on the line next to the exercise number.



(5)

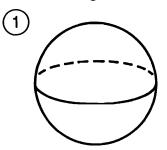
# TOPIC Space Figures

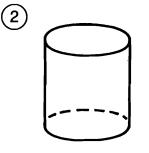
## What Did the Taxi Driver Say About His Daughter?

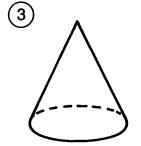
Write the name that best escrib 1 space figure. Then find your answer in the answer column. Write the letter of the answer in the box containing the number of the exercise.

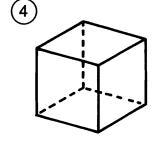
6

1												
1	6	1	ο '	2	11 1	5	7	1 1A	1 1	12	Q	2
۱	U	+	9	_	' '	ا ا	•	טי ן	l '	'4	U	3
ı												
ı												
L												







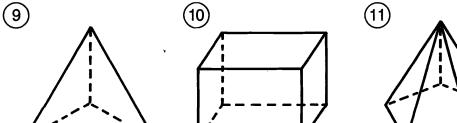


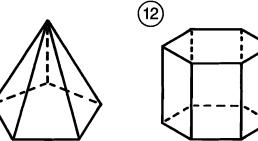
- triangular pyramid
- hexagonal prism
- (R)cone





- rectangular prism
- pentagonal prism
- cube



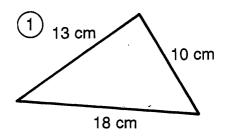


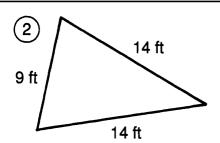
- pentagonal pyramid
- cylinder
- hexagonal pyramid
- rectangular pyramid

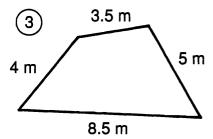
## Why Did the River Guide Carry a Rifle?

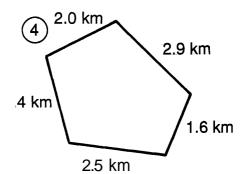
Find the PERIMETER of each figure. Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

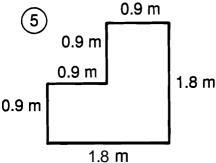
a .

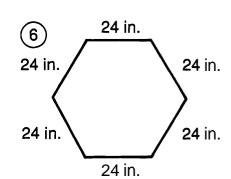




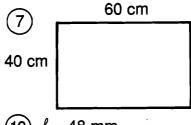


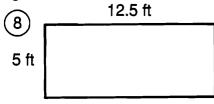


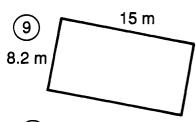




Find the perimeter of each rectangle.







 $\begin{array}{c}
\boxed{10} \quad \ell = 48 \text{ mm} \\
\text{w} = 32 \text{ mm}
\end{array}$ 

11)  $\ell = 6.2 \text{ km}$ w = 4.7 km (12)  $\ell = 12 \text{ in.}$ w = 12 in.

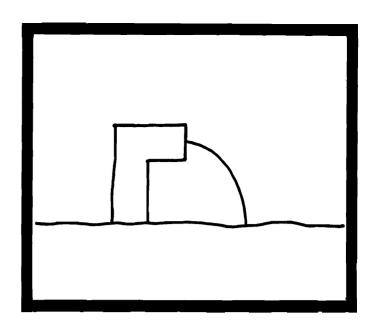
- Find the perimeter of a sheet of typing paper 8 1/2 in. wide and 11 in. long.
- How many feet of border are needed to go around a square bulletin board that is 4.5 ft on each side?

HE	TO	ST	SH	OT	OP	FL	OO	LS	OA	TT
48 in.	43.4 m	144 in.	18.6 km	18 ft	21 m	46.4 m	156 in.	37 ft	160 mm	32 ft
HE	AT	RA	IN	TO		PI	PE	NG	DS	ET
180 cm	35 ft	184 mm	21.8 km	7.2 m		42 in.	200 cm	39 in.	156 in.	11.4 km
	:									

# What Is the Title?

TO **FIND** 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:**

	21	6.3	15.75	42	16.6	70	215	15	15.75	21	16.5	15.75	96	65.6	19	
	15	70	16.6	90	17.25	6.3	64	21	200	100	90	6.3	70	15.75	96	230
l. F	ind the perimeter of each figure.															
0	Triangle with sides of 8.2 cm, 3.9 cm, and 4.5 cm  B Rectangle with sides of 22 in. and 28 in in.															in.
G	Squ	3.9 cm, and 4.5 cm cm and 28 in.  Square with sides of 16.4 m m Equilateral triangle with sides of 5.25 ft														
E			gram v nd 75 ci		ides of		Cr	n				xagon '	with	sides		ft
(A)	Rec	ıular	decago	n wi	th sides	- S				of 2.7		J				in.
•		.63 k				_	kr	m	U	Rhom	nbus w	vith sid	es of	50 ft		ft
II. S	Solve.	•••	••••	• • • •	• • • •	• • • •	• • • •	•••	• • • •	• • • •	••••	••••	•••		• • • •	
L	Its le		h of a la n is 5 ft eter.				dth. Fir				ngth is		_	ular pos idth. Fir		
M		•	meter c Find th		•		ide.	m		side is	s 14 ft	long. /	4noth		e is 9	One ft long. ft
R	A pennant is shaped like an isosceles triangle. The short side is 14 in. long and is half the length of each longer side. Find  How long is the third side?  The longest side of a triangulary long. The second side is 1.5 than the longest side. The th													is 1.5 n	n sho	orter

the perimeter of the pennant.

\_\_\_\_ in.

perimeter?

the length of the longest side. What is the

# Why Did the Piano Player Bang Her Head Against the Keyboard?

Find the circumference *(C)*of each circle, given the diameter (d) or radius *(r)*. Use 3.14 for  $\pi$ . 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)  $d = 3 \text{ cm} \quad \blacklozenge$
- (2) d = 8 in.
- 9

- (G)
- $\bullet$  C = 125.6 in.
- + C = 31.4 cm

C = 94.2 in.

C = 301.44 in.

- (3) d=7 cm
  - . . .
- 6
- (16)

[7]

(13)

- (Y)
- $\bullet$  C = 9.42 cm

(5)  $d = 9.2 \text{ cm} \Leftrightarrow$ 

d = 40 in.

- (15)
- $\bullet$  C = 72.22 in.

- 6  $d = 1.5 \text{ in.} \quad \blacklozenge$
- (2)
- (3)
- $\Phi$  C = 25.12 in.

- (7) d = 600 m ◆
- $8) d = 23 in. \quad$
- 9 d = 10 cm
- (1) (5)
- s (H)
- ♦ C = 15.7 in.♦ C = 28.888 cm

- (10) r=1 in.
- $\widehat{11}$ ) r = 6 cm
- (12)

(14)

(8)

- A
- + C = 15.7 cm

C = 13.816 cm

C = 21.98 cm

C = 6.28 in.

C = 37.68 cm

- (12) r = 15 in.
- (13) r = 2.2 cm  $\blacklozenge$
- (14) r = 48 in.
- (15) r = 3.9 cm +
- (16) r = 2.5 in. ◆
- 17) r = 2.5 cm ◆
- (18) r = 50 m

(17)

(18)

(10)

- R

L

A

 $(\mathsf{B})$ 

- - + C = 314 m
  - + C = 4.71 in.
- S
  - $\bullet$  C = 24.492 cm
    - $\bullet$  C = 1,884 m
- 13 16 17 18 7 8 9 10 11 12 14 15 2 3 4 5 6

Answers J - R:

Did You

Answers A - I:

Allswei	$5\frac{2}{7}$ in.	5 ½ in. 22 in. 37.68 ft								
			C	\. 						
	<u>ц</u>	-	æ	_						
	ш	*	O							
:	D	7	<b>d</b>							
Hear About	၁	_	0							
Hear	8	<b>—</b>	7							

G

HELPED

71.8 ft

GUY

18.84 ft

≥

BOX

HAMBURGER

51#

11.932 cm

里

FRESH

**EARTH** 

68 ft

NO

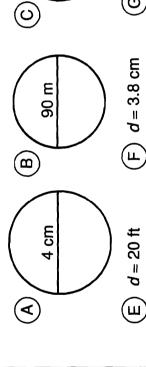
SUBMARINE

34.5 ft

660 mm

Find each answer in the appropriate answer column and notice the word under it. Write this word in the box containing the letter of the exercise.

I. Find the circumference of each circle. Use 3.14 for  $\pi$ .



d = 3.8 cm(F)

MH0 WH0

1,630 m

BIG



r = 5 cm

 $\Xi$ 

里

54 mm

O

**BECAUSE** 

84.78 in

132 mm

2.1 m

3 ft

WANTED

- II. Find the circumference of each circle. Use  $\frac{22}{7}$  for  $\pi$ .
- (1) d=14 ft

SILLY

282.6 m

- d = 28 in. $\subseteq$
- (N)  $r = 3\frac{1}{2}$  in.

(M) r = 21 mm

P

31.4 cm

- $\bigcirc$  r = 105 mm
- $(P) r = \frac{3}{4} in.$

**PEAS** 

 $(4\frac{5}{7} \text{ in.}$ 

JUMPED

 $d = 10\frac{1}{2} \text{ ft}$ 

(K) d = 49 mm

720 mm

**TOP** 

143 mm

GROUND

33

(R) The minute hand of a large clock is 6 ft long. How far does the point

(Q) The wheels on a bicycle have a diameter of 27 in. How far does the bicycle travel with each turn

of the wheels?

OFF

III. Solve. Use 3.14 for  $\pi$ .

of the hand move in one hour?

1,570 m

44 ft

VEGETABLES

13.188 m

里

12.56 cm

⋖

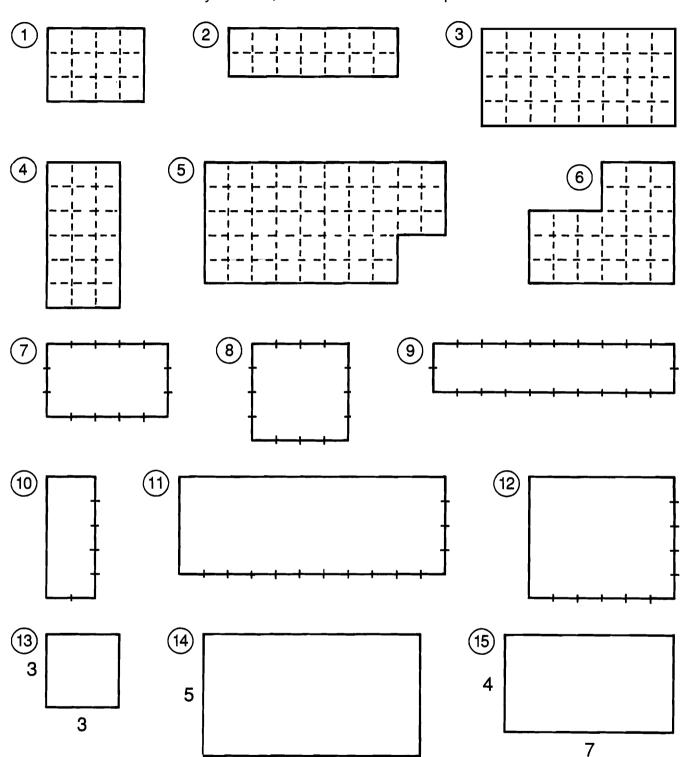
DUMPED

62.8 ft

11.542 cm

### What Does a Tuba Call Its Father?

Give the number of square units in each figure. Find your answer and cross out the letters above it. When you finish, the answer to the title question will remain.



TH	TU	GR	00	ВА	MI	во	ОМ	MY	US	PA	IR	ST	OP	UB	PA	LS	AD	AD
32	15	9	42	20	12	28	21	44	18	8	45	24	14	16	27	30	46	10

9

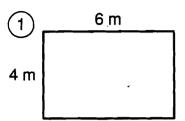
Measure the length and width of each rectangle to the nearest cm. Then compute both the PERIMETER and AREA. Find both answers in S 12 cm the rocket and cross out the letter next to each. (For answers that Δ. 14 cm appear more than once in the rocket, it doesn't matter which one you cross out.) 16 cm When you finish, the answer to the title question will remain.  $\alpha$ 18 cm 2. 1.  $\alpha$ 18 cm ш 20 cm ш 20 cm ш 20 cm Ш 20 cm 3. 5. Ш 20 cm > 22 cm > 22 cm ⋖ 24 cm 26 cm 9 cm<sup>2</sup> 12 cm<sup>2</sup> 1 0 14 cm<sup>2</sup> 6. Z 15 cm<sup>2</sup> Ш 16 cm<sup>2</sup> 7. 8. 18 cm<sup>2</sup> S 20 cm<sup>2</sup> 21 cm<sup>2</sup> Д. 24 cm<sup>2</sup> G 9. 25 cm<sup>2</sup> 27 cm<sup>2</sup> 10. ⋖ 28 cm<sup>2</sup> 30 cm<sup>2</sup>  $\mathbf{B}$ ⋖ 32 cm<sup>2</sup>

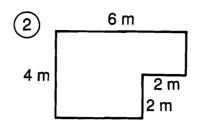
What Did the Baseball Coach Look For in Space?

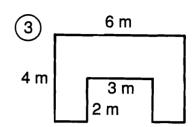
## Why Do Elephants Have Ivory Tusks?

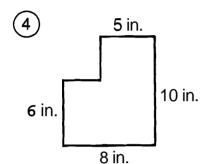
Do each exercise and find your answer in the answer columns. Write the letter of the answer in each box containing the number of the exercise.

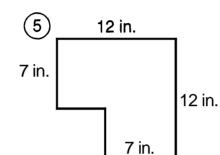
I. Find the area of each figure.

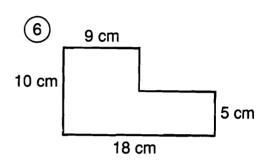






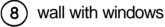


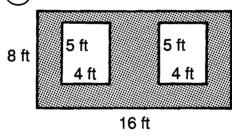


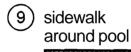


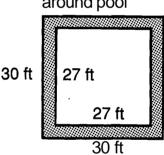
II. Find the area of the shaded region in each figure.

- (7) yard with sandbox
- 15 ft 7 ft 7 ft 20 ft









III. Solve.

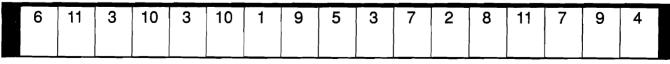
- A bedroom is 15 ft long and 12 ft wide. How much will it cost to carpet the room if carpeting costs \$22 per square yard? (1 yd = 3 ft)
- A rose garden in the city park is rectangular and is 9 m wide. If the area of the rectangle is 144 m<sup>2</sup>, what is the length of the garden?

### **ANSWERS**

- (A) 219 ft<sup>2</sup>
- (T) 68 in.<sup>2</sup>
- (U) 251 ft<sup>2</sup>
- G) 124 cm<sup>2</sup>
- C) 21 m<sup>2</sup>
- N \$440

- (L) 20 m<sup>2</sup>
- (F) \$520
- (V) 108 in.<sup>2</sup>
- E 24 m<sup>2</sup>
- D 88 ft<sup>2</sup>
- (P) 19 m

- (I) 135 cm<sup>2</sup>
- (S) 171 ft<sup>2</sup>
- (R) 16 m
- B) 165 ft<sup>2</sup>
- W) 119 in.<sup>2</sup>
- O 18 m²



# How Was the Wooden Marionette Related to the Wooden Diving Board?

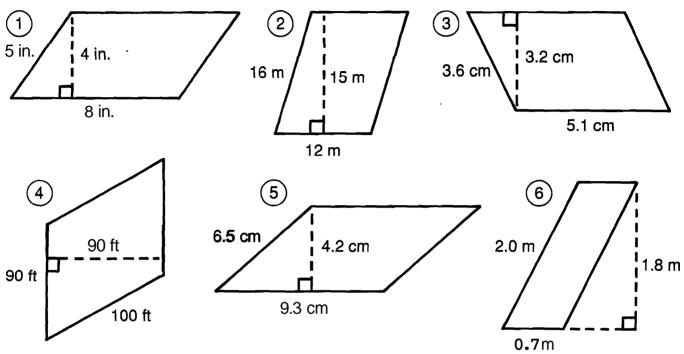
Use a calculator to solve each problem (round decimal answers to the nearest tenth). Find your answer in the answer column and notice the two letters next to it. Write these letters in the spaces over the exercise number at the bottom of the page.

WORLI								A	nsv	vers	S								
	New H							,								HA	1.7	•	
1. Wh	nat was t	the area	a of th	ne p	uzzle in	ft <sup>2</sup> ?	•		-				ft <sup>2</sup>			HE	99	7,22	8.8
2. Wh	nat was	the area	a of th	ne p	uzzle in	in. <sup>2</sup>	?		_				in.2			$\simeq$			
3. Wh	nat was	the ave	rage	size	of each	ı pie	ce?		-				in. <sup>2</sup>			OM)	46		
measu	D RECC res 69.6 s sewn	by 99.5	5 ft. It										∎ au,			DE) LY) TR)	67	30 3,20 ,344	
<b>4.</b> Wh	at is the	e area o	f the	quilt	in ft <sup>2</sup> ?				-				ft <sup>2</sup>			EY)		,099	
5. Wh	at is the	e area o	f the	quilt	in <b>in.</b> 2?	•			_				in.2			$\preceq$			.+
6. Wh	at is the	area o	eac	h sq	uare?				_				in.2	_	()	NO)	2.1		
 W∩DLI	D RECO	NDD: Th	•	rld'o	longos	• • but	ffat t	• abla	•	• • 2 2	• •	• f+	long	_	(	DT)	4,6	75	
and 8.2	the wide and the state of the s	. On Jur	ne 19	), 19	82, app	roxii	mate	ely 4	,000	) pe	ople		iorig			SA)		310	
	at was t	_											ft <sup>2</sup>			RI)		7,10	
8. Wh	at was t	he perir	nete	r of t	he table	e?			-				ft		(1	ME)	6,9	25.2	2
9. If 4	,000 pe	ople we	re ec	uall	y space	d										FA	6,6	26	
	und the v far apa	•											ft			ST	14	904	
		. — . —	-	-		. —								-		EE)	61	8	
WORLI displaye				_			_				as f	irst			(	VO)	4,8	35	
10. Wh	at is the	area of	the	flag	in ft²?				_				ft <sup>2</sup>		(	MI	9,5	90	
11. Wh	at is the	area of	the	flag	in yd <sup>2</sup> ?				_				yd <sup>2</sup>		(	TH	43	.4	
	e fabric i out 1.6 <b>l</b> k					ıch										EN	83	820	
doe	es the fla	ag weigl	า?						_				lb		(	ER	28	186	.4
																-			
3	7	9	1		5	1	0		<u> </u>	8	3	1	1		<u></u> -	1:	2	- 6	<u></u>

# What Happened to Mr. Meter When Mrs. Meter's Mother Flew in for a Visit?

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.

I. Find the PERIMETER and the AREA of each parallelogram.



- II. Solve.
- 7 The base of a parallelogram is 10 in. The height is 2 in. more than half the base. Find the area.
- 9 The area of a parallelogram is 60 ft<sup>2</sup>. The height is 5 ft. How long is the base?
- 8 The height of a parallelogram is 4.5 cm. The base is twice the height. What is the area?
- 10) The area of a parallelogram is 375 cm<sup>2</sup>. The base is 25 cm. Find the height.

SC A NT EN DA RE	.38 m <sup>2</sup> 7	70 in. <sup>2</sup>
	AL	<del>-</del>
	)	l '
37.6 cm <sup>2</sup>   180 m <sup>2</sup>   12 ft   18 m   380 ft   1.26 m <sup>2</sup>   16	.32 cm <sup>2</sup>	16 ft
PR IM V ET TY IS	ER	IT
5.4 m 350 ft 39.06 cm <sup>2</sup> 84 in. <sup>2</sup> 40.5 cm <sup>2</sup> 26 in.	6.3 m 8,	100 ft <sup>2</sup>

- R) 100.1 cm<sup>2</sup>
- 10.5 ft<sup>2</sup> 810 ft<sup>2</sup>
- $96.5\,\mathrm{cm}^2$ 
  - 20 in.<sup>2</sup>
- $187.5 \, \text{m}^2$ 
  - (d
- \$475

18 mm

- 22.5 cm<sup>2</sup>
  - 32 in.<sup>2</sup>
    - $72\,\mathrm{m}^2$
- 790 ft<sup>2</sup>

- 68 cm<sup>2</sup>
- 7.5 in.<sup>2</sup> 0
- $\mathcal{E}$

(14) A square dinner napkin 8 in. on each side is folded along its diagonal. Find the area of

the folded napkin.

- 24 in.<sup>2</sup> (D
  - 9  $\widehat{S}$
- **A**
- $70 \, \mathrm{cm}^2$ 
  - $(\mathbf{B})$ 
    - - <u>a</u>
        - $\mathbf{z}$

16 mm

- - ပ

2.5 in.









6 in.







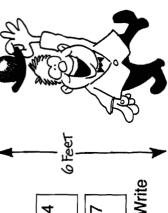
60 ft

- $172.5 \, \text{m}^2$  $\Xi$
- \$450
- 144 mm<sup>2</sup>
  - 8.25 in.<sup>2</sup>
  - $3.4 \text{ km}^2$  $\mathbf{z}$  $\overline{S}$



"I hate playing tic-tac-toe," Tom said	7	9	ω	12	12	2 10 8 12 12 13 4	4		
"I wish I were six feet tall," Tom said	13	8	14	9	-	13 8 14 6 1 14 6 13	9	13	1 2
	l	;	(	9	1				Н.

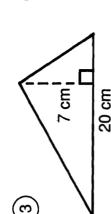
4	7
13	5
9	14
14	-
-	6
9	13
14	က
8	=
က	2

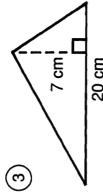


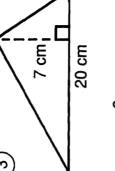
Find the area of each triangle, then find your answer in the answer column. Write

4 7 cm; the letter of the answer in each box containing the number of the exercise.

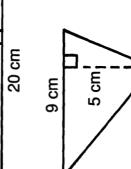
(2)







12 m



P

12 m

<u></u>

(5)

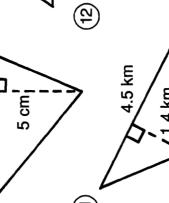
3#

8 cm

17 cm

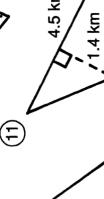
6

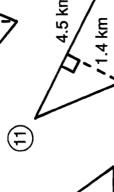
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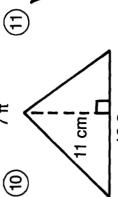


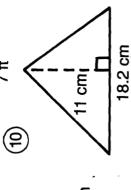


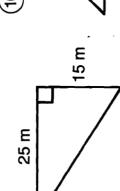












A triangular sail has a base of 5 m and a square meter, find the cost of canvas to height of 10 m. If canvas costs \$18 a

make the sail.

<del>(13</del>

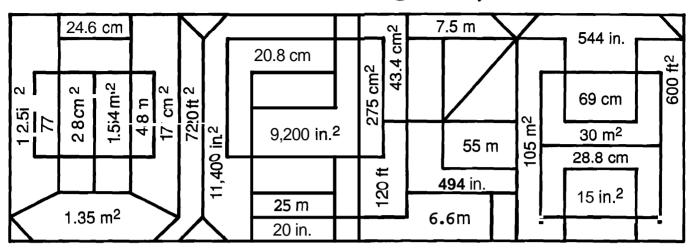
ر ن

3. "I just flew in from the coast," Tom

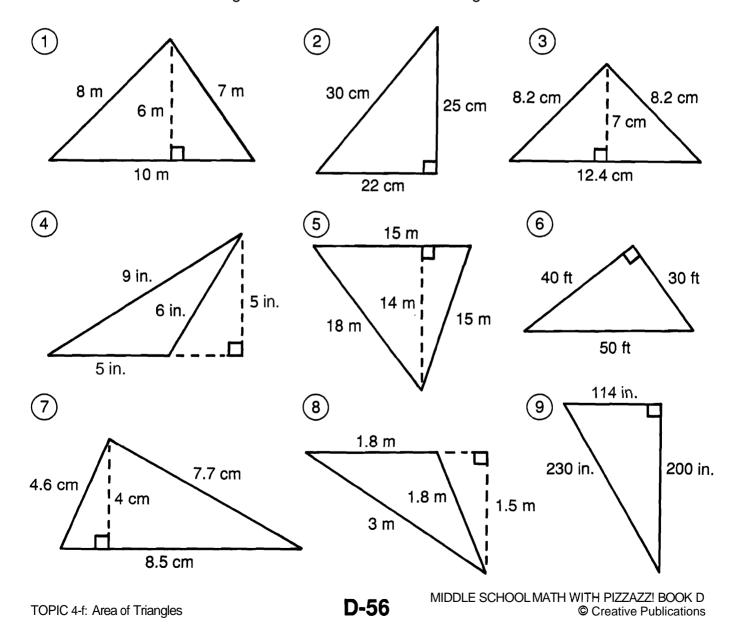
8 in.

5 in.

## What Happens When the Smog Lifts in Los Angeles, California?



Find the AREA and the PERIMETER of each triangle below. Look for both answers in the rectangle. Shade in each area containing a correct answer.



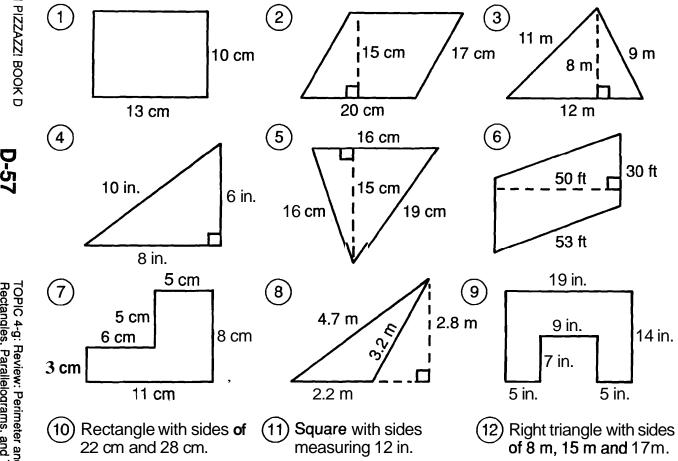
3

5

6

### Why Was Igor Unhappy About His Spelling Test Even Though He Got Everything Right?

Give both the perimeter and area of each figure. Find each answer in the appropriate answer column. Fill in the correct unit of measure for each answer you choose, then circle the number-letter next to it. Write the letter in the matching numbered box at the bottom of the page.



10

9

11

12

13

14

15 16 17

18

19

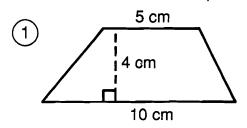
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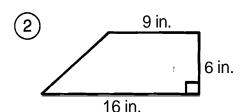
		Per	ime	ters	}		Ar	eas		
	9	5		21-	S	58		1	3-L	
Ī	2	4		17-	E	34		2	4-A	
	6	7		18-	S	30	0		6-S	
	1	0.1		8-	E	60	}	2	1-H	
	4	6		12-	L	13	6		4-R	
	1	52		16-	R	3.	80	2	9-S	
	1	00	2	25-\	N	64	•	1	1-0	,
	3	8		20-	Т	24		2	6-O	,
I	3	2		1-	Н	14	4	2	7-R	
	4	0		4-1	М	3.	26		19-	
	9	.4		27-	L	13	80	2	8-D	)
	55	51		5	-1	1,	500		2-E	:
	7	<b>'</b> 4		22-	E	20	)3	1	1-A	١
	3	34		25-	F	48	3		9-D	}
	4	8		7-	S	24	10	1	3-P	)
	1	66		15-	Т	61	6	1	9-C	)
	4	9		8-	Α	12	20	2	3-P	<u>.</u>
	8	30		16-	Н	57	'6		7-H	
2	1	22	23	24	25	26	27	28	29	

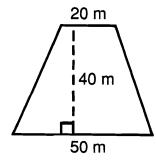
## What Game Did Tarzan Like to Play?

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.

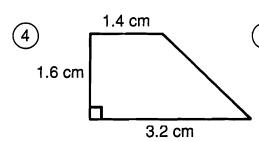
I. Find the area of each trapezoid.

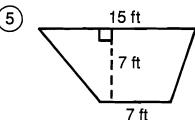


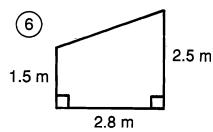




[3]



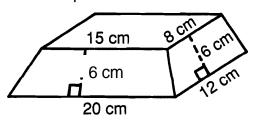




7  $b_1 = 11 \text{ in.}$   $b_2 = 9 \text{ in.}$  $b_3 = 8 \text{ in.}$ 

(8)  $b_1 = 3.4 \text{ m}$   $b_2 = 6.4 \text{ m}$ h = 5.0 m

- 9  $b_1 = 70 \text{ cm}$   $b_2 = 30 \text{ cm}$ h = 25 cm
- II. An artist designed a base for one of his sculptures with the dimensions shown. The top and bottom are rectangles. The sides are isosceles trapezoids.
  - (10) Find the area of the front face (20 cm base).
  - 11) Find the area of the side face (12 cm base).
  - (12) Find the area of the top.



- (Y) 76 in.<sup>2</sup>
- N) 105 cm<sup>2</sup>
- O) 80 in.<sup>2</sup>
- D) 3.68 cm<sup>2</sup>
- (S) 3.92 cm<sup>2</sup>

- (L) 24.5 m<sup>2</sup>
- (B) 30 cm<sup>2</sup>
- T) 120 cm<sup>2</sup>
- Z) 1,360 cm<sup>2</sup>
- (F) 5.6 m<sup>2</sup>

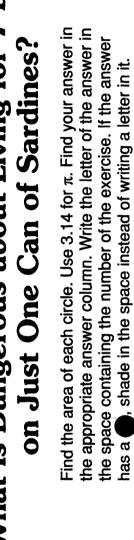
- (A) 72 cm<sup>2</sup>
- (R) 69 ft<sup>2</sup>
- P 26.2 m<sup>2</sup>
- (M) 75 in.<sup>2</sup>
- (1) 60 cm<sup>2</sup>

- (U) 1,400 m<sup>2</sup>
- (C) 95 cm<sup>2</sup>
- (G) 77 ft<sup>2</sup>
- (H) 1,250 cm<sup>2</sup>
- E) 4.5 m<sup>2</sup>

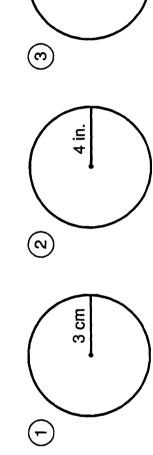
D T B C H O R I N F A M T U O Z D N Y F A L T B P I E G U N S H

Answer to puzzle:

# What Is Dangerous about Living for 7 Days on Just One Can of Sardines?



Answers 10 - 18:



0.2826 km<sup>2</sup>

 $\Xi$ 

(N) 108.74 in.<sup>2</sup>

M 1,256 m<sup>2</sup>

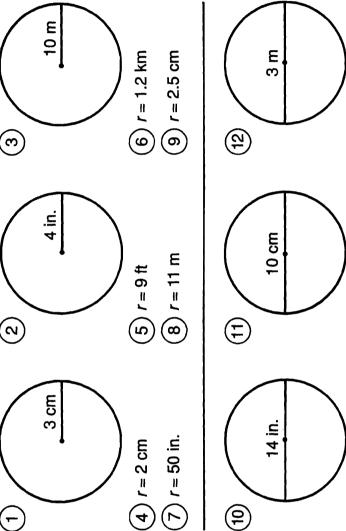
 $36.815\,\mathrm{cm}^2$ 

 $7.065 \, m^2$ 

 $78.5\,\mathrm{cm}^2$ 

0

P) 1,416 m<sup>2</sup>



38.465 cm<sup>2</sup>

153.86 in.<sup>2</sup>

E

211.36 ft<sup>2</sup>

(8)

 $0.3416 \, km^2$ 

200.96 ft<sup>2</sup>

 $\mathcal{E}$ 

 $3.14\ cm^2$ 

(H

113.04 in.<sup>2</sup>

(T)

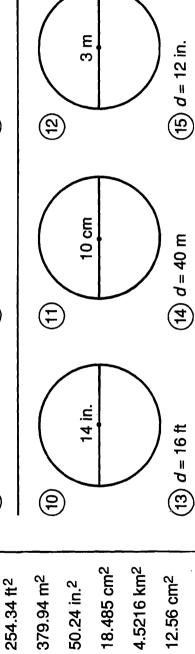
S

15

Ξ

 $8.415 \, \text{m}^2$ 

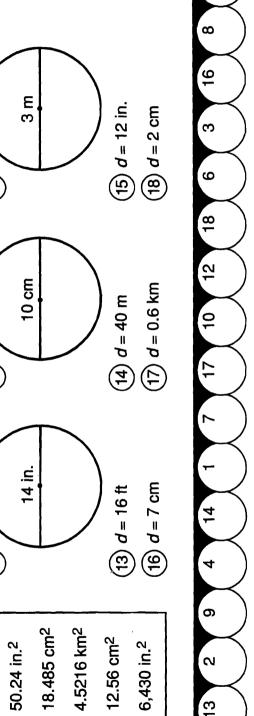
H



 $\subseteq$ 

 $\overline{\mathbf{x}}$ 

0



214.14 ft2

(d

54.84 in.<sup>2</sup>

**A** 

Answers 1 – 9:

 $19.625\,\mathrm{cm}^2$ 

5

361.14 m<sup>2</sup>

 $\widehat{\mathbf{B}}$ 

28.26 cm<sup>2</sup>

7,850 in.<sup>2</sup>

ග

 $314 \, \text{m}^2$ 

 $5.1016 \, km^2$ 

<u>ပ</u>

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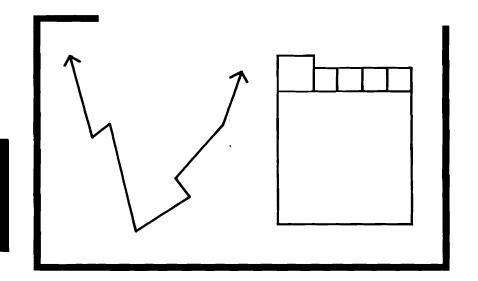
H

13

# MIDDLE SCHOOL MATH WITH PIZZAZZ! BOOK D © Creative Publications

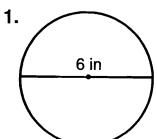
# What Is the Title of This Picture?

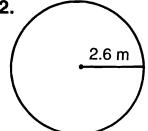
Use the diameter (d) or radius (r) of each circle to find the circumference (C) and area (A) of the circle. Use 3.14 for  $\pi$ . Round answers to the nearest hundredth (if necessary). Each time an answer appears in the coded title, write the letter of the exercise above it.



### **CODED TITLE:**

5,024 176.63 0.7 40 1,017.36 0.7 5.2 4,954 18.84 47.1 3 113.04 0.7 1.69 5,024 28.26 4.40 21.23 47.1 0.7 172.38 36 1.54 251.2 18.84 176.63 0.7 984.46 15 16.33 16.33 4.40





- (D) d =\_\_\_\_\_ m

- 3. d = 80 ft
- (C) r =\_\_\_\_ft
- $(U) C = \underline{\qquad} ft$
- $(W) A = ____ft^2$
- 5. d = 1.4 cm
- $(E) r = \underline{\qquad} cm$

- **4.** r = 18 in.
- (S)  $d = ____i$  in.
- $(L) C = \underline{\qquad} in.$
- $(K) A = ____in.^2$
- **6.** r = 7.5 mm
- $(F) d = \underline{\hspace{1cm}} mm$

## Why Is a Mathematician Like an Airline?

Round each answer to the nearest hundredth (if necessary) and find it in the appropriate **answer** column. Use **3.14** for  $\pi$ . Fill in the correct unit of measure for each answer you choose. Write the letter of the exercise in the box containing the number of the answer.

- 1. A circle has a radius of 12 in. Find:
  - (E) The diameter of the circle.
  - (H) The circumference of the circle.
  - (T) The area of the circle.
- 2. A circle has a radius of 4.4 cm. Find:
  - (S) The diameter of the circle.
  - (Y) The circumference of the circle.
  - (H) The area of the circle.
- 3. A circle has a diameter of 60 m. Find:
  - The radius of the circle.
  - (O) The circumference of the circle.
  - (T) The area of the circle.
- 4. A circle has a diameter of 1.8 km. Find:
  - (O) The radius of the circle.
  - (E) The circumference of the circle.
  - (U) The area of the circle.
- 5. Solve.
  - B Jack's cow is tied to a beanstalk with **a** piece of **rope that** is **15** ft long. What is the area of the circle in which the cow can graze?
  - A round game table has a diameter of 1 m. How much plastic laminate is needed to cover the top of this table?
  - S The diameter of the earth at the equator is about 8,000 mi. Based on this figure, how far is it around the earth?
  - P Radio station KROQ broadcasts in all directions to **a** distance of 40 mi. How many square miles are in the station's broadcast area?
  - (L) WORLD RECORD: The world's largest Ferris Wheel was built in London in 1897. The wheel had a radius of 150 ft. How far would you travel in one turn of this wheel?

### Answers 1 - 3:

- (4) 27.63
- (14) 61.43
- (16) 30
- (2) 75.36
- (12) 461.36
- (21) 8.8
- (17) 172.4
- (13) 24
- 9 60.79
- (1) 2,826
- 8 452.16
- (5) 25.51
- (7) 188.4
- (10) 2,516

### **Answers 4 - 5:**

- (15) 898
- 6) 706.5
- (13) 5,174
- (5) 24**,**930
- (11) 2.54
- (20) 0.79
- (19) 0.9
- (18) 942
- (10) 690.5
- (14) 2.91
- (15) 5,024
- (3) 5.65
- (17) 0.87
- (12) 25,120



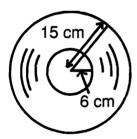
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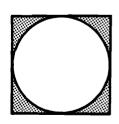
## How Do You Get a One-Armed Monkey Down From a Coconut Tree?

Solve each problem. Use 3.14 for  $\pi$ . Find your answer and cross out the letter next to it. When you finish, the answer to the title question will remain.

- Find the diameter of a circle if the circumference is 8 cm. Round to the nearest tenth.
- **2.** Find the diameter of a circle if the circumference is 24.5 m. Round to the nearest tenth.
- 3. The largest living thing on earth is a California sequoia tree named the "General Sherman." The circumference of its trunk is about 82 ft. Find the diameter of the trunk to the nearest whole number.
- A revolving water sprinkler sprays water in all directions to a distance of-25 ft. What area does it cover? Round to the nearest 10 ft<sup>2</sup>.
- **5.** Pizza Mind Pizza sells a large pizza with a diameter of 14 in. and a medium pizza with a diameter of 11 in. Find the following to the nearest whole number:
  - A. The area of the large pizza.
  - B. The area of the medium pizza.
  - C. How much larger is the large pizza?
- 6. Nick Claus plans to have a model train running in a circle around his holiday tree. How many feet of track will he need if the diameter of the circle is 9.5 ft? Round to the nearest whole number.
- 7, A record has a radius of 15 cm. The label has a radius of 6 cm. Find the following to the nearest tenth:
  - A. The area of the record (including the label).
  - B. The area of the label.
  - C. The area of the record that is not covered by the label.



- **8** The diameter of a basketball hoop is 18 in. The circumference of a basketball is 30 in.
  - **A.** Find the diameter of the basketball. Round to the nearest tenth.
  - B. How much less is the diameter of the basketball than the diameter of the hoop?
- A circle is cut out of a piece of plywood that is 10 in. square. The scraps are thrown away.
  - A. Find the area of the circle.
  - B. How many square inches of plywood are thrown away?



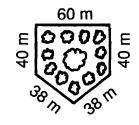
10 in.

### When Is a Chair Like the Fabric Used to Make It?

Write the correct formula to use in solving each problem. 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 problem.

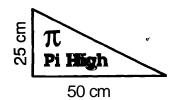
4	9	7	5	3	10	1	12	6	2	8	11

1 A botanical garden was designed in the shape of a pentagon. How many meters of fencing are needed to go around the garden?



- 2 How many square feet of wallpaper are needed to cover a wall 8 ft high by 15 ft wide?
- **3** The diameter of a circular running track is 140 yd. How far would you run in one lap?
- **4** How much weather stripping is needed to go around a square window measuring 42 in. on a side?
- **5** A dangerous criminal has escaped from prison. The police believe he could not have traveled more than 10 mi in any direction from the prison. How many square miles must be searched?
- 6 How much lace edging is needed to go around a rectangular tablecloth measuring 52 in. by 70 in.?

- 7 How many tiles are needed to cover a square patio measuring 18 ft on a side if each tile covers 1 sq ft?
- 8 The orbit of the earth around the sun is approximately a circle with a radius of 93,000,000 mi. How far do we travel in one orbit around the sun?
- **9** How much felt is needed to make this banner?



- 10 If each bag of fertilizer covers 2,000 sq ft, how many bags are needed to fertilize a rectangular lawn measuring 100 ft by 160 ft?
- **11** A lighthouse beacon can be seen 24 mi in all directions. What is the area over which the beacon can be seen?
- 12 Popeye put colorful plastic tape around the edge of a triangular sail. The sail had sides of 10 ft, 15 ft, and 18 ft. How many feet of tape did he use?

### Code Key

## Perimeter1 Circumference

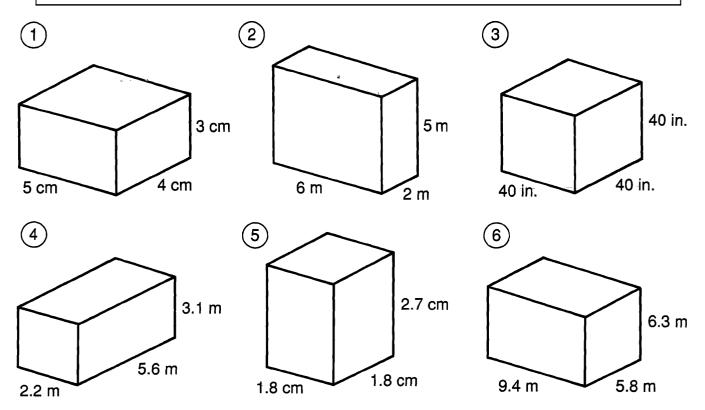
- S P = sum of the lengths of the sides.
  - $(A) P = 2\ell + 2w$
- (W) P = 4s
- $C = \pi d \text{ or } C = 2\pi r$

#### Area

- $(T) A = \ell w$
- $(E) A = s^2$
- $(H) A = \frac{1}{2}bh$
- $(N) A = \pi r^2$

# What Happened to Zelda After She Swallowed Two Nickels, Three Dimes, and a Quarter?

Give the SURFACE AREA of each prism. Find your answer in the answer columns and notice the two letters next to it. Write these letters in the spaces over the exercise number at the bottom of the page.

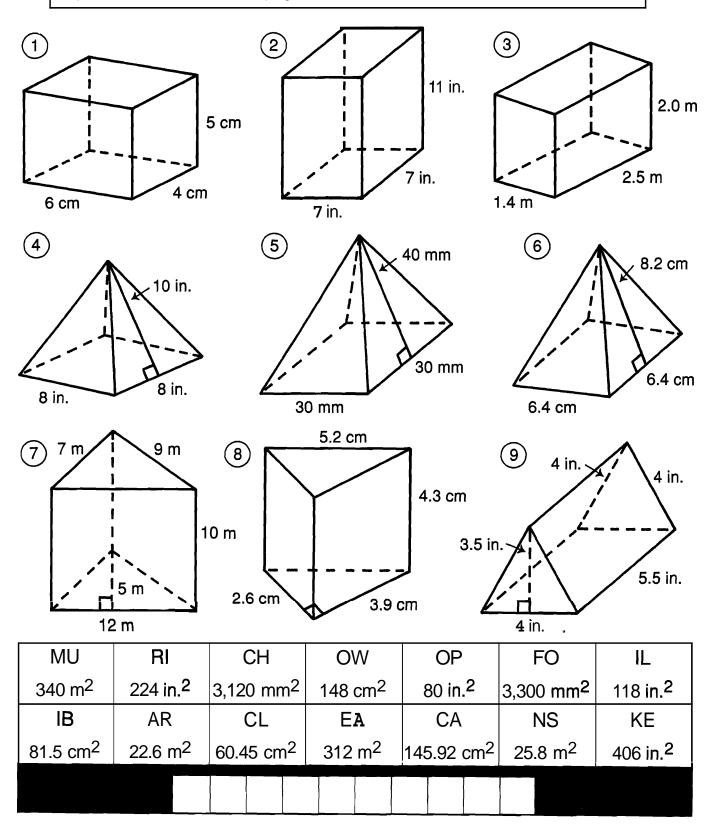


- 7 A rectangular storage box is 12 in. wide, 15 in. long, and 9 in. high. How many square inches of colored paper are needed to cover the surface of the box?
- (8) A teacher made a pair of foam dice to use in math games. Each cube measured 10 in. on a side. How many square inches of fabric were needed to cover the two cubes?

TH 73 m <sup>2</sup>					Ans	wers					OB) 8,560 in. <sup>2</sup>			
AL 23.12 cm <sup>2</sup>		AS	94 c	m²		ER 318.26 m <sup>2</sup>					NO	25.9	2 cm <sup>2</sup>	
EW) 846 in. <sup>2</sup>		(IT)	86 m	12		A	N 9,	600 ir	ո.2		PL 1,050 in. <sup>2</sup>			
ER 104 m <sup>2</sup>	<u>-</u>	CH	1,20	0 in. <sup>2</sup>		(	E) 30	00.56	m <sup>2</sup>		TR	85 cı	m <sup>2</sup>	
4	2	7	_	1		5	5	8	3		3	6	6	

### What Is Cold And Comes In Cans?

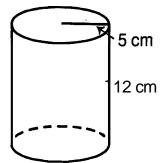
Find the surface area of each figure. Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.



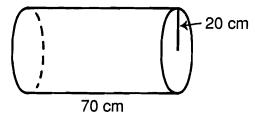
## Why Did Humpty Dumpty Have a Great Fall?

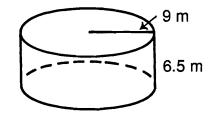
Do each exercise and find your answer in the answer column. Write the letter of the answer in each box containing the number of the exercise. Use 3.14 for  $\pi$ .

Find the lateral area and the total surface area of each cylinder.



- 4 ft
- 1 lateral area: \_\_\_\_\_
- (3) lateral area: \_\_\_\_\_
- (2) total area: \_\_\_\_\_
- (4) total area: \_\_\_\_\_





(5) lateral area: \_\_\_\_\_

TOPIC 5-c: Surface Area of Cylinders

- (7) lateral area: \_\_\_\_\_
- (6) total area: \_\_\_\_\_
- (8) total area: \_\_\_\_\_
- II. Find the total surface area of each cylinder.
- 9 r = 3 cmh = 10 cm
- 10) r = 8 in.h = 8 in.
- (11) d = 10.8 mh = 2.6 m

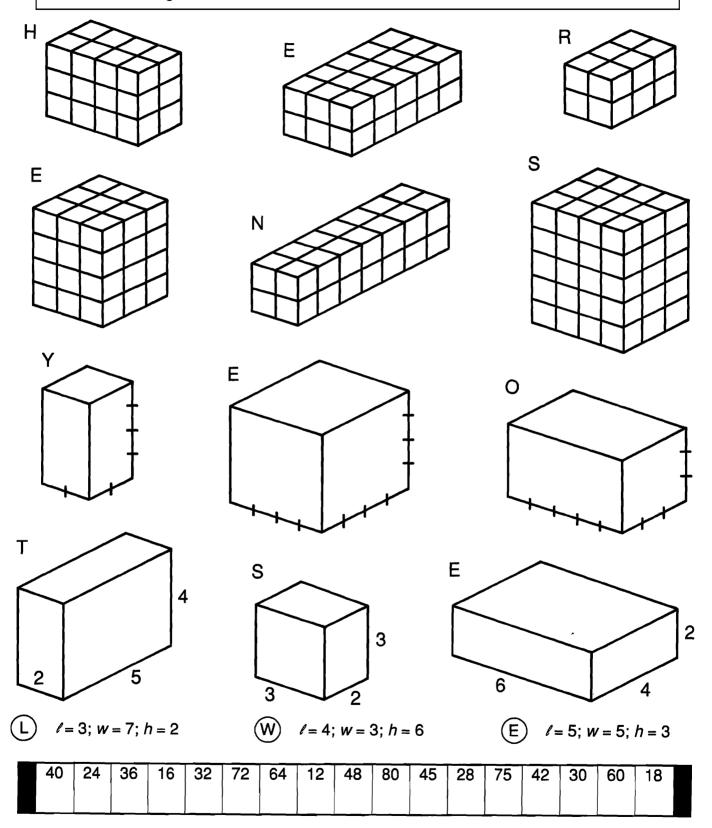
- III. Solve.
- 12) A can of tomato juice is a cylinder with a radius of 7.5 cm and a height of 20 cm. What is the area of the label around the can?
- (13) A steel oil tank is a cylinder with a diameter of 12 ft and a height of 18 ft. How many square feet of steel were needed to make the tank?

- Y) 412.18 ft<sup>2</sup>
- (R) 803.84 in.<sup>2</sup>
- (H) 792.16 m<sup>2</sup>
- T) 251.2 ft2
- M) 904.32 ft<sup>2</sup>
- (L) 861.6 cm<sup>2</sup>
- S 367.38 m<sup>2</sup>
- D 376.8 cm<sup>2</sup>
- P 244.92 cm<sup>2</sup>
- © 815.18 ft<sup>2</sup>

- (K) 11,304 cm<sup>2</sup>
- (B) 942 cm<sup>2</sup>
- (E) 351.68 ft<sup>2</sup>
- N 775.14 in.<sup>2</sup>
- (U) 533.8 cm<sup>2</sup>
- (A) 271.296 m<sup>2</sup>
- O 876.06 m<sup>2</sup>
- (V) 12,412 cm<sup>2</sup>
- (F) 8,792 cm<sup>2</sup>
- (T) 311.046 m<sup>2</sup>

## Mystery: What happened when a 6-year old, a 5-year old, a 4-year old, a 3-year old, and a 2-year old joined to form a basketball team?

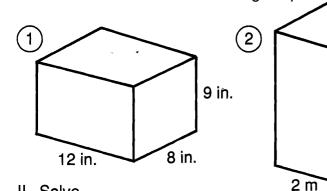
Find the volume of each prism in cubic units. Write the letter of the exercise in the box containing the answer.

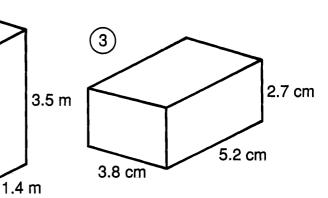


## What Movie Is about a Kid Who Ran Away from Home with His Bicycle?

Find each answer in the answer columns and notice the two letters next to it. Write these letters in the spaces over the exercise number at the bottom of the page.

I. Find the volume of each rectangular prism.





- II. Solve.
- A classroom.is 26 ft wide, 32 ft long, and 9 ft high. What is the volume of the room in cubic feet?
- If all the gold that has been produced in the last 500 years could be melted to form a single cube, each side would measure about 16 m. How many cubic meters of gold is this?
- 8) Krispy Kritters Cereal used to come in a box with a volume of 2,850 cm<sup>3</sup>. However, The Krispy Kritters Co. designed a new larger box 22.5 cm wide, 6.2 cm deep, and 30 cm high. How many more cubic centimeters will the new box hold than the old box?
- A swimming pool is 20.6 m long, 8.5 m wide, and has an average water depth of 1.7 m. Find the volume of water needed to fill the pool.
- A refrigerator is 3 ft wide, 2.5 ft deep, and 6 ft high. The walls and other parts of the refrigerator take up 20 ft<sup>3</sup>. How many cubic feet are left for food?
- An aquarium weighs 22.5 lb when empty. The aquarium is 30 in. long, 14 in. wide, and is filled with water to a depth of 18 in. Water weighs 0.036 pound per cubic inch. How much does the aquarium weigh when it is full of water?

### **ANSWERS**

(RU) 985 cm<sup>3</sup>

(ST) 6,118 ft<sup>3</sup>

WI) 4,096 m<sup>3</sup>

LA) 314.56 lb

(TH) 864 in.<sup>3</sup>

) 297.67 m<sup>3</sup>

53.352 cm<sup>3</sup>

23.5 ft<sup>3</sup>

1,335 cm<sup>3</sup>

311.27 m<sup>3</sup>

) 294.66 lb

ES) 25 ft<sup>3</sup>

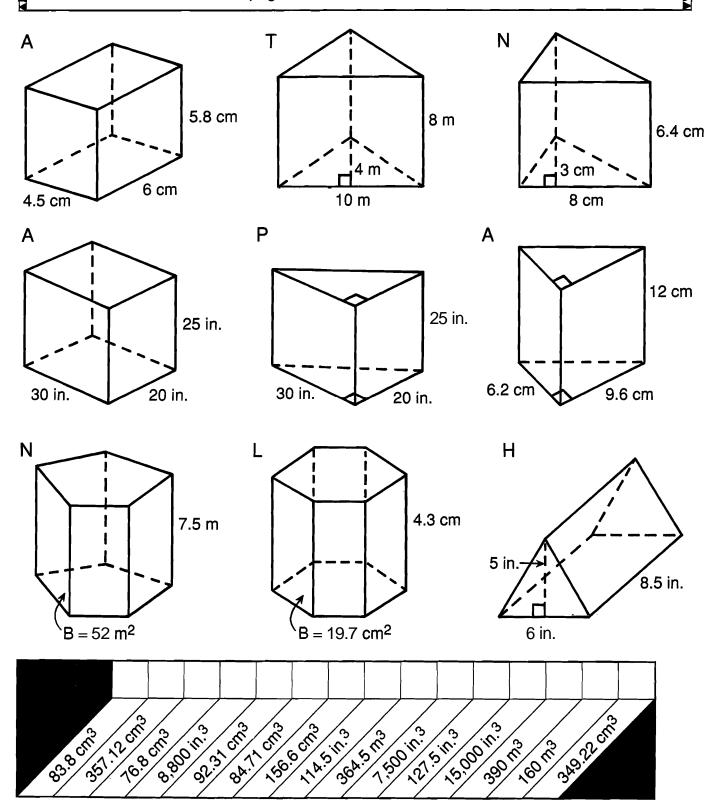
9.8 m<sup>3</sup>

3.986 m<sup>3</sup>

TH) 7,488 ft<sup>3</sup>

# What Is Big, Gray, and Lives in California?

Find the volume of each prism. Write the letter of the exercise in the box above the answer at the bottom of the page.



### **₹ TRIVIA TEST**

1. What Is the Best Way to Paint a Rabbit?

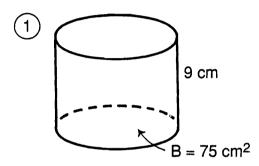
11 5 10

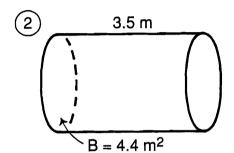
What Candy Do Kids Eat on the Playground?

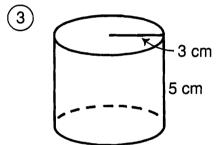
10 10 10 5

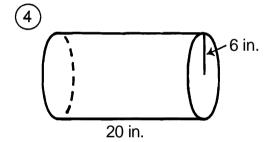
Do each exercise and find your answer in the answer column. Write the letter of the answer above the exercise number each time it appears in the code. Use 3.14 for  $\pi$ .

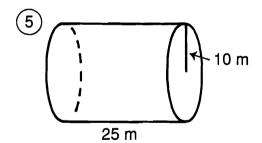
I. Find the volume of each cylinder.

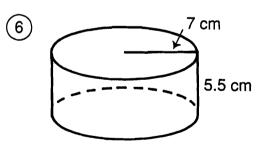












- r = 8 in.h = 3 in.
- $r = 2.5 \, \text{mm}$ h = 60 mm
- d = 10 mh = 7.2 m

### Answers

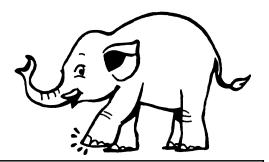
- 814.13 cm<sup>3</sup>
- 565.2 m<sup>3</sup>
- 381.36 mL
- 141.3 cm<sup>3</sup>
- 14.8 m<sup>3</sup>
- 602.88 in.3
- 675 cm<sup>3</sup>
- $7,490 \, \mathrm{m}^3$
- 1,177.5 mm<sup>3</sup>
- 452.16 mL
- 2,260.8 in.<sup>3</sup>
- 382.8 cm<sup>3</sup>
- 15.4 m<sup>3</sup>
- 846.23 cm<sup>3</sup>
- 717.8 in.<sup>3</sup>
- 376.8 cm<sup>3</sup>
- 1,224.5 mm<sup>3</sup>
- 7,850 m<sup>3</sup>
- 614.2 m<sup>3</sup>

II. Solve.

- (10) Shawn is making a candle using a cylindrical mold with a radius of 2 cm and a height of 30 cm. How many cubic centimeters of wax are needed for the candle?
- (11) A mug in the shape of a cylinder has a base with a radius of 4 cm. How many milliliters of liquid does it hold if filled to a height of 9 cm?

(Hint: 1 cm3 holds 1 mL.)

# Why Did the Elephant Paint His Toenails Red, Green, Yellow, Blue, and Purple?



Find each answer in the appropriate set of boxes at the bottom of the **page**. Write the letter of the exercise in the box containing the answer.

I. Find the length of one side (s)of each square.

0

Area 25 m<sup>2</sup>

s = m

Area 64 cm<sup>2</sup>

**s** = \_ cm

E

Area 400 ft<sup>2</sup>

**s** = \_\_\_\_ ft

II. Find the square root.

- S √49
- (L) √16
- $\sqrt{100}$
- ( √81

- **(E)** √36
- (D)  $\sqrt{4}$
- $(H) \sqrt{144}$
- (N)  $\sqrt{1}$

- © √900
- (H)  $\sqrt{2,500}$
- $(0) \sqrt{6,400}$
- (D)  $\sqrt{10,000}$

III. Simplify.

(E) 15<sup>2</sup>

 $(H) 11^2$ 

 $\bigcirc$  25<sup>2</sup>

**E** √121

(L) √625

- (A)  $\sqrt{16} + \sqrt{9}$
- (E)  $\sqrt{36} + \sqrt{64}$
- (R)  $\sqrt{25} \sqrt{9}$

- (N)  $\sqrt{16+9}$
- $(T) \sqrt{36 + 64}$

(L) √0.25

(B) √0.81

 $(J) \sqrt{0.01}$ 

Answers for Part I and Part II 12 20 60 30 5 80 4 2 3 50 10100 6 90 Answers for Part III 10 121 11 18 12 0.1 14 25 0.5 15 0.4 0.9 225 715 625 2 5

## Why Did the Teacher Assign Extra Homework When She Taught Adolescents?



Find which two **consecutive whole** numbers the square root is between. **Write the** letter of the exercise on the number line between these two numbers.

Use the top number line for the first set of exercises, and the bottom number line for the rest. •

(s) √30

 $(H) \sqrt{2}$ 

(T) √45

(E) √8

(A) √23

 $(N) \sqrt{120}$ 

(G) √138

√82

(W) √11

(Y) √70

(S)  $\sqrt{0.5}$ 

(R) √59

0 1 2 3 4 5 6 7 8 9 10 11 12

S √75

(D) √20

(o) √3

 $(A) \sqrt{6}$ 

(E) √52

(S) √95

(0) √112

(N) √125

D √14

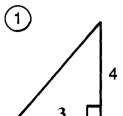
 $(T) \sqrt{0.1}$ 

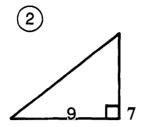
(A) √33

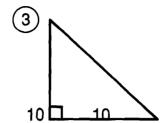
(L) √40

## Why Do Adults Complain So Much?

Find the length of the hypotenuse of each right triangle below. Find your answer in the answer column. Write the letter of the answer in the box containing the number of the exercise.

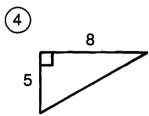


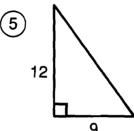


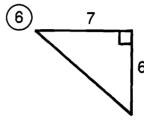


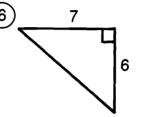


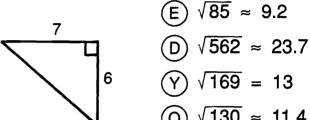
**Answers** 

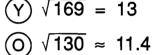


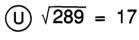












$$\bigcirc H \sqrt{800} \approx 28.3$$

$$(E) \sqrt{25} = 5$$

$$(N) \sqrt{580} \approx 24.1$$

$$\widehat{(R)} \sqrt{2,500} = 50$$

$$(s) \sqrt{346} \approx 18.6$$

$$(P) \sqrt{89} \approx 9.4$$

$$(L) \sqrt{275} \approx 16.6$$

$$\bigcirc$$
  $\sqrt{65} \approx 8.1$ 

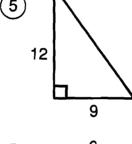
$$(A) \sqrt{200} \approx 14.1$$

$$(R) \sqrt{269} \approx 16.4$$

$$(A) \sqrt{100} = 10$$



10

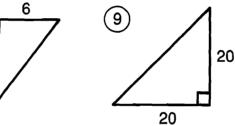


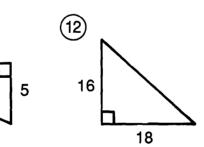
8

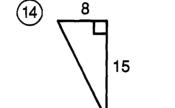
(11)

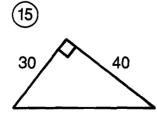
8

12









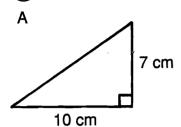
5	9	1	11	3	13	6	10	15	2	8	12	14	4	7
		•	1		. •			'•	<b>-</b>		'-	[ ' '	ĺ .	
			1	ĺ	ĺ	1	ĺ	ĺ		ĺ	1	ĺ	1	
<b>_</b>					L		L			L	L	<u> </u>	L	

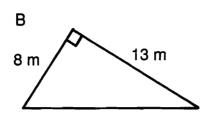
13

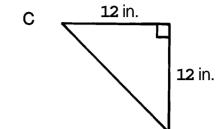
## How Would You Describe a Dead Skunk?

Round each answer to the nearest tenth (if necessary). Find each answer at the bottom of the page and cross out the letter above it. When you finish, the answer to the title question will remain.

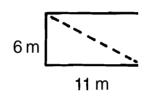
1 Find the length of the hypotenuse of each right triangle.



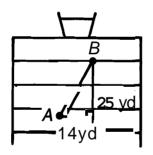




2 A rectangle is 6 m wide and 11m long. How long is the diagonal of the rectangle?

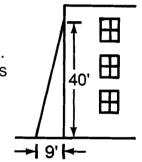


- 3 A television screen may be described in terms of the diagonal measure of its screen. If a TV screen is 20 in. wide and 15 in. high, what is the length of its diagonal?
- A quarterback at point A throws the football to a receiver who catches it at point B. How long was the pass?



A rope is stretched from the top of a 7-foot tent pole to a point on the ground 12 ft from the base of the pole. How long is the rope?

- 6 Kristin and her family lefttheir campsite for a hike. They hiked 5 mi west and then 2 mi north. How far were they from the campsite?
- 7 The window of a burning building is 40 feet above the ground. The base of a ladder is placed 9 feet from the building. How long must the ladder be to reach the window?



- 8 The bases on a baseball diamond are 90 feet apart. How far is it from home plate to second base?
- 9 The lawn in front of Pythagoras Jr. High is in the shape of a rectangle 24 m long and 10 m wide. How many meters shorter is your walk if you walk diagonally across the lawn rather than along two sides of it?

D	Е	S	Α	Х	D	Т	N	0	1	S	Z	Т	Α	С	K	Т	Ε
5.4 i	29. yd	15. m	8 m	13.2 m	12.5 m	16.7 in.	41 ft	12.2 cm	6.1 m i	13.9 ft	42.5 ft	127.3 f	28.7 yd	14.4 ft	17.0 in.	129.8 tf	25 in.

## Cryptic Quiz

1. What is the opposite of a professional eater?

8.8 19.6 18.5 8.8 10.9 8.8 3.3 9.8 70.7 1.4 70.7 14.5

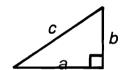
2. How would you describe a job in the Acme Mitten Co. shipping department?

22.4 16.1 19.2 5 19.6 6 68 6 8 16.1 9.2 70.7 6.3

3. What can be right but never wrong?

8.8 19.6 7.4 8.8 19.6 6 8 70.7

For each exercise, find the missing length. (Refer to the diagram at the right.) Round your answer to the nearest tenth (if necessary) and find it in the code. Each time the answer appears, write the letter of the exercise above it.

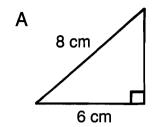


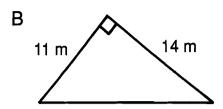
- $\bigcirc$   $a = 9, b = 4, c = _____$
- (E)  $a = 50, b = 50, c = _____$
- $\bigcirc$  a = 8, b = 14, c = \_\_\_\_\_
- (B) a =\_\_\_\_\_, b = 20, c = 30
- (S)  $a = ____, b = 3, c = 7$
- (V)  $a = 6, b = ____, c = 11$
- M  $a = ____, b = 5, c = 12$
- (w)  $a = 1, b = 1, c = _____$
- (G) a =\_\_\_\_\_, b = 8, c = 10
- (X)  $a = ____, b = 16, c = 25$
- (C)  $a = 5, b = ____, c = 6$
- (A)  $a = 2, b = ____, c = 9$
- (R) a = 4,  $b = _____$ , c = 15
- (L)  $a = ____, b = 15, c = 17$
- $\bigcirc$  a = 12, b = \_\_\_\_\_, c = 13
- (N)  $a = 10, b = ____, c = 22$

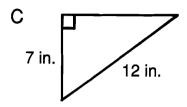
## What Relation **Is** a Doorstep to a Doormat?

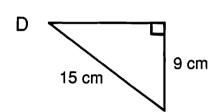
Round each answer to the nearest tenth (if necessary). Cross out the box containing each answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

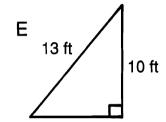
For each right triangle, find the length of the side that is not given.

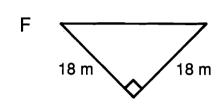












Yuki just bought a bigscreen TV set. The screen has a diagonal measure of 40 in. If the screen is 32 in. wide. how high is it?

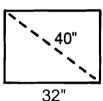
Asrosse grsv80 meter

downstream. How far

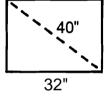
river, the current

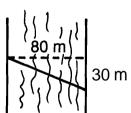
carried him 30 m

did he swim?



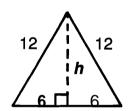
A 25-foot ladder is leaned against a wall. If the base of the ladder is 7 ft from the wall, how high up the wall will the ladder reach?





6) Each side of an equilateral triangle measures 12 cm. Find the height, h. of the triangle.

mast?



Two jets left an airport at the same time. One traveled east at 300 miles per hour. The other traveled south at 400 miles per hour. How far apart were the jets at the end of an hour?

The mast of a sailing ship is 20 ft tall. A

rope is stretched 26 ft from the top of the

mast to a cleat on the deck of the ship.

How far is the cleat from the base of the

PL	DO	AS	OR	MA	TE	AM	RU	PF
85.4 m	12 cm	9.8 cm	24 in.	500 mi	26 in.	5.3 cm	10.4 cm	520 mi
ON	ON AR UI		PA	TH	IN	AT	ER	AN
25.5 in.	9.4 in.	17.8 m	16.6 ft	87.1 m	9.7 in.	24 ft	18.5 ft	8.3 ft

## What Does a BONE SPECIALIST Need to Get His Practice Started?

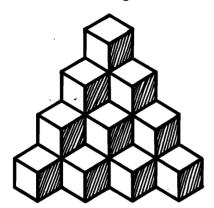
Evaluate each formula below for the given values of the variables. Find each answer at the left and cross out the letter next to it. When you finish, the answer to the title question will remain.



			where $d$ is the distance traveled by an object moving at speed $r$ in time $t$ . Find $d$ if
			r = 32 m/sec, t = <b>8</b> sec m
		2 E = IR	where E is the voltage in an electric circuit with current ■ and resistance <i>R</i> . Find <i>E</i> if
Ш	49		1= 2.5 amperes, R = 60 ohmsv
¥	145	$\boxed{3}  \mathbf{v} = 9.8t$	where v is the speed in meters per second of a free- falling object after t seconds. Find v if
S	120		t = 5 sec m/sec
⋖	1,160	$6 \cdot (n-2)180$	where <b>S</b> is the sum of the measures of the angles of a polygon with <b>n</b> sides. Find <b>S</b> if
_	150		<i>n</i> = 8°
Ω	490	$\boxed{5}  \mathbf{A} = 6\mathbf{e}^2$	where <b>A</b> is the surface area of a cube with edge <b>e</b> . Find <b>A</b> if
Ш	172		<i>e</i> = 12 cm cm2
0	1,080	$6) V = hw^2$	where <b>V</b> is the volume of a prism with a square base of side w and with height <b>h</b> . Find V if
$\alpha$	520		h = 10  cm, w = 7  cm. cm <sup>3</sup>
_	68	$7  L = \frac{s^2}{30}$	where <b>L</b> is the approximate length of a skid in feet for a car traveling at s miles per hour. Find <b>L</b> if
Ш	256		<b>s</b> = 60 mi/h ft
m	74	8 F= 1.8 <i>C</i> + 32	where F is the Fahrenheit temperature equivalent to Celsius temperature <b>C.</b> Find F if
⋖	924		<b>C</b> = 20°°F
<b>—</b>	164	$9  B = \frac{4(220 - y)}{5}$	where B is the recommended maximum heart rate during exercise for a person <b>y</b> years old. Find <b>B</b> if
S	864	·	y = 15 beats/sec

## \*\*\* Test of Genius \*\*\*

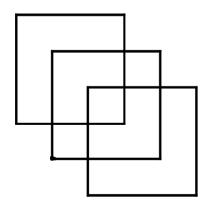
1 Identical cubes are stacked in the corner of a room as shown. How many cubes are there altogether?



(2) Make this equation correct by changing the position of only one digit.

$$101 - 102 = 1$$

- 3 Ms. Smucker went to a store, spent half of her money and then \$10 more. She went to a second store, spent half of her remaining money and then \$10 more. But she then had no money left. How much money did she have to begin with?
- If 8 widgets equal 4 curlicues and 2 curlicues equal 3 goofups, then 16 widgets equal how many goofups?
- Draw the figure below without lifting your pencil from the page or tracing over a line previously drawn.



6 Steven has 9 gold coins that are identical in appearance. However, one coin is counterfeit and weighs slightly less than the others. Using a balance scale, how can he find the counterfeit coin in just two weighings?



7 In the following addition problem, the letters A, B, and C stand for three different digits. What digit should replace each letter?

- 8 The teacher noticed there were fewer than 100 students on the playground. When she counted them by 2s, there was 1 student left over. In fact, when she counted them by 3s, 4s, 5s, or 6s, there was always 1 student left over. How many students were on the playground?
- In the Hope family there are seven sisters, and each sister has one brother. Including Mr. and Mrs. Hope, how many are in the family?

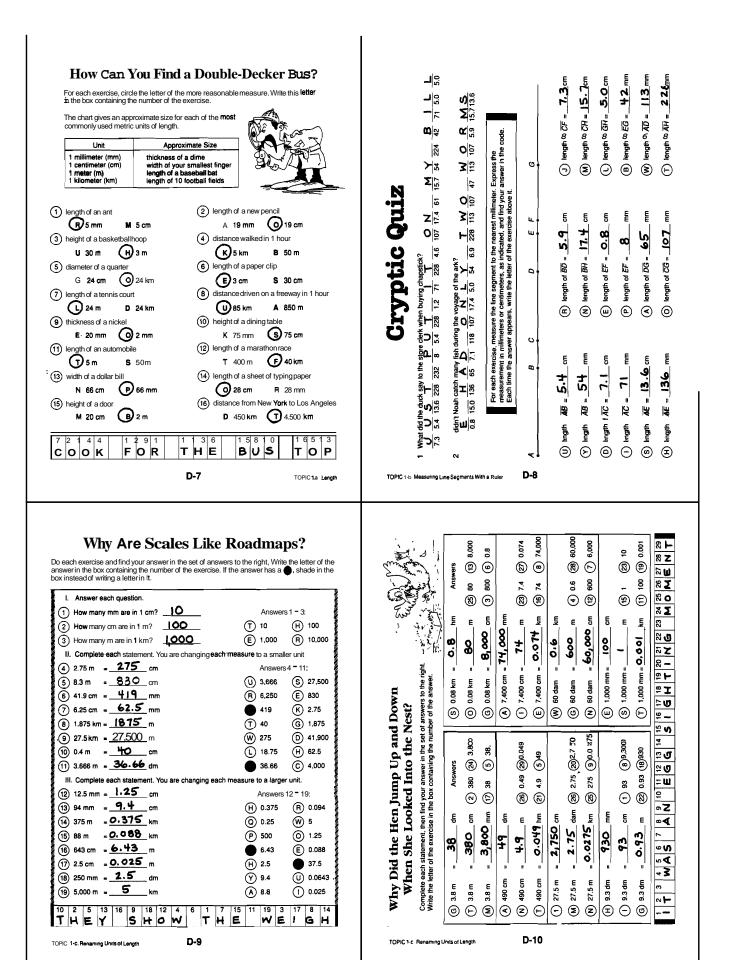
### **SCORING KEY**

8 or 9 — Superstar Genius

6 or 7 — Star Genius

4 or 5 — Genius

3 or less — Genius of the Future





Choose the correct answer for each exercise. Write the letter of the answer in the box containing the number of the exercise. The table below may help you.

Unit	Approximate Size						
1 mitliliter (mL)	capacity of an eyedropper						
1 liter (L)	capacity of a juice carton						
1 kiloliter (kL)	capacity of 4 bathtubs						

I. Choose the more reasonable estimate of capacity.



2 a tablespoon C 15 L 1 15 mL

3 an automobile gas tank NSOL P5kL

a swimming pool
A 80 L O 80 kL a drinking glass O 25 mL M 250 mL

6 a water cooler jug (H)20 L R 2 L

_		•	_			
*****	+	********	***	*****	***	****
II. Complete each	ch statement.			Answers	7 -	14:
7 8.5 L	<u>8,500</u> mL		В	25	Υ	90
8 0.4 L	± <u>400</u> mL		U	1.750	W	40.000
9 90.000 mL	<u>• 90</u> L		0	8,500	F	32
10 ,250 mL	<u>- 0.25</u> L		۵	4,000	ı	0.75
11) 1.75 <b>kL</b>	<u>- 1,750</u> ∟		S	900	R	175
12) 40 kL	<u>= 40,000</u> L		G	0.25	ı	400
13) 750 L	= <u>0.75</u> kL		T	3.2	U	7.5
(14) 3,200 L	= <u>3, 2</u> kL					
*********	********	, <b>,,,,,,,,,,,,,,,,,,,,</b> ,,,,,,,,,,,,,,,	400	*****	***	***

III Solve

Write

if answers to the right. Wi number of the exercise. If g that exercise number.

n the set of a aining the nu containing the

Answers 15 = 16:

(5) Ms Sparkle bought 12 cans of diet soda. Each can contained 350 ml... How many liters of soda did she buy? 4.2 R 48 N 5.4

(6) Chef Pierre made 6.4 L of creamed carrot soup. If it is served in 200-mL cups. how many cups can be filled? 32 10 16 7 15 1 G L O V E 9 4 11 Y 0 U 12 2 14 6 W I T H Åľ

I'M IN GLOVE WITH YOU D-11

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‡ Z

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4 O

12 **Q** 

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13

#### What Do Salmon and Cod Use When They Go to War?

Choose the correct answer for each exercise. Find the letter of the answer 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. The table below may help you.



Unit	Approximate Size
1 milligram (mg) 1 gram (g) 1 kilogram (kg)	mass (weight) of a grain of sand mass (weight) of a paperclip mass (weight) of a math textbook



I. Choose the more reasonable estimate of weight.

1 a nickel **M**5 g **N** 5 kg

(4) a lemon

(2) a postage stamp

A 60 g Y 60 mg

(3) a bowling ball (B)7 kg (K) 70 kg

Answers 7 = 14:

H) 490

J) 800

(T) 725

(F) 2.5

(P) 4.9

(S) 0.6

(5) a 12-year-old child **2** 40 kg () 4 kg

6 a postcard (a) 75 g (G) 750 mg

(L) 0.133

(C) 60.000

(V) 6,500

(K) 13.3

(U) 7,250

(D) 80

X 12 g W 120 g II. Complete each statement.

7 6.5 g = 6,500 mg

8 0.8 g = **BOO** mg (9) 4,900 mg = 4.9 g

(10) 133 mg = 0, 133 g (11) 7.25 kg - 7,250g

(12) 60 kg = 60,000 g (13) 250 g = 0.25 kg

(14) 80,000 g = 80 kg

(T) 65 (E) 0.25

(5) An average orange weighs 270 g. How many kilograms does a bag of 8 oranges weigh? 2.16 (7) 1.96 (8) 800 (8) A vitamin tablet weighs 1.2 g. It contains 150 mg of Vitamin C and 250 mg of 8 Complex vitamins. How many milligrams of other ingredients are in the tablet?

BAXLFEEBIFUES BBH XI T F B B A X B N X V K V E S I

Answer to puzzle: FISH TANKS

D-12

TOPIC I-e Weight

14 min 30 s

15 min 26 s

3 d 15 h

3 min 28 s

6 h 28 min

6 h 15 min

4 min 40 s

3.920

240 ×

2 d 17 h

3 min 42 s

12 h 28 min

9 h 51 min

12 h 42 min 14 min 56 s

10 h 58 min

6 h 40 min

310 \* ×

4.320 ď

150 Z

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TEX



3.09 L = 3,0 90 mL 0.04 kL = 40,000 mL 2.75 kg 1 099 0.66 kL =\_ (2)

30.9 L = 0.0309k

D-13

 $\Theta \Theta \Theta \Theta$ 

27, 500mg

4,000,000

99,000

 $\bigcirc$ 

. 8,300g

8.3 kg = 27.5g=

Complete each

9 # # 1 # #

.. Sipp has 4.6 L of lemonade son's 20 birthday guests. Ab ny milliliters should she pour **(** A jar of sweet pickles contains 650 g of pickles. There are 12 jars in a case. How many kilograms of pickles are in a case?

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includes and if the cover are the report of paper in the report of p ~ ₼ **₹ Z** 5 Q (2)

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(3)

TOPIC 1-f: Review: Capacity and Weight

#### What Should You Study to Learn How to be a Cowboy?

Cross out the letter next to each correct answer. When you finish. the answer to the title question will remain.

I Complete each statement

1) 4 h = **240** min

3 2 h 30 min = 150 min

(2) 7 min = 420sec 4) 5 min 10 sec = 310 sec

(5) 180 min = 3\_ h (7) 80 min = 1 h 20 min

6) 540 sec = 9 min 8 135 sec = 2 min 15 sec (10) 3 d = 4,320nin

II. Add or subtract. Simplify if possible.

11 2 h 30 min + 3 h 45 min 6h Ismin

9 3d = 72 h

5 rnin 40 s + 8 min **50** s 14 min 305 13) 7 h 8 rnin + 2 h 43 rnin 9h 51min

4 8 min 10 s - 3 min 30 s

12 h 25 min 5 h 45 min

16 32 min 50 s - 17 min 24 s

4min 405

6h 4omin

15min 26s

6 h 47 min + 4 h 13 min IIh

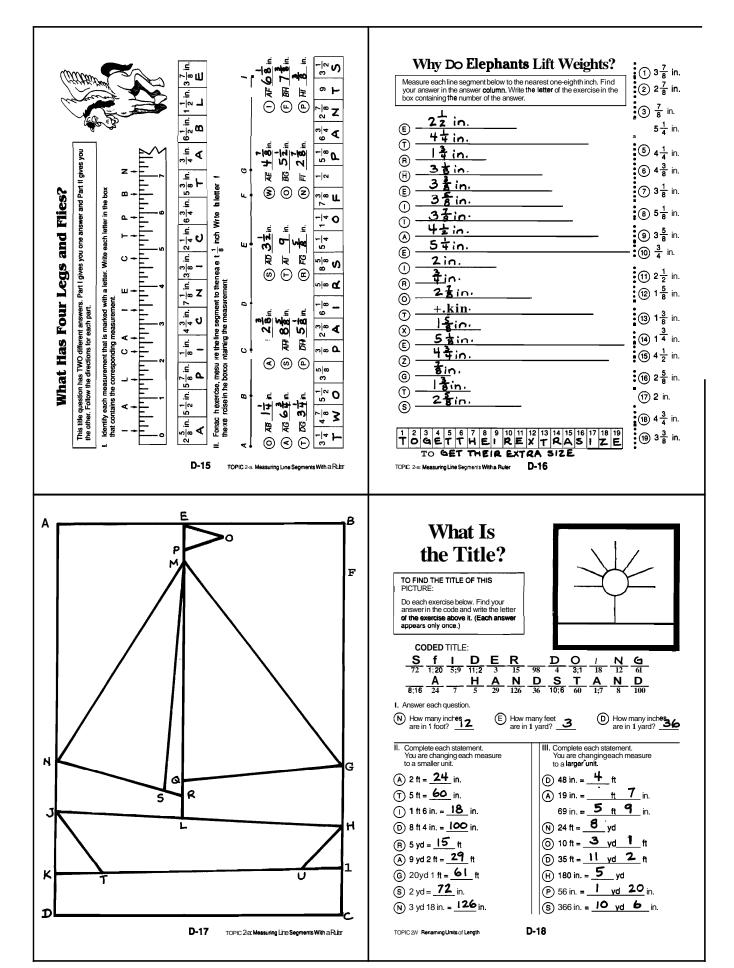
9 min – 5 min 32 s 3 min 28s

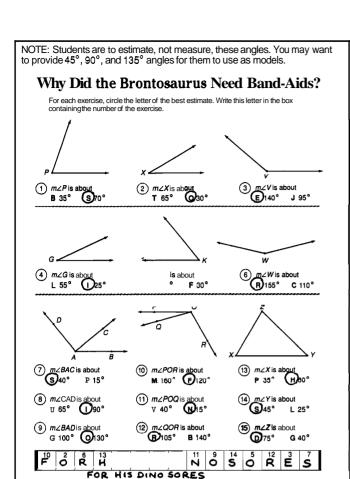
- 2 d 14 h 24 17h

(20) It takes 15 h 20 min to travel from Los Angeles to Salt Lake City by train. It takes only 2 h 38 min to fly between the two cities. How much longer does the train take? 12 h 42 min

TOPIC 1-g Time

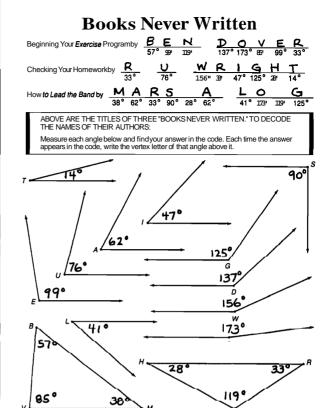
2; 15

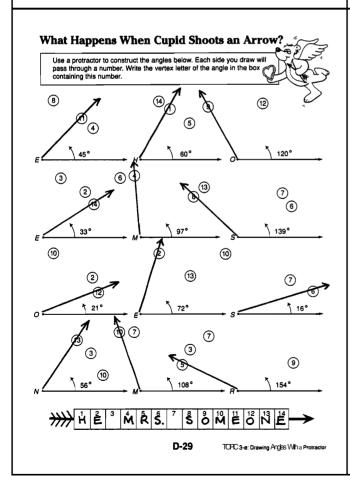


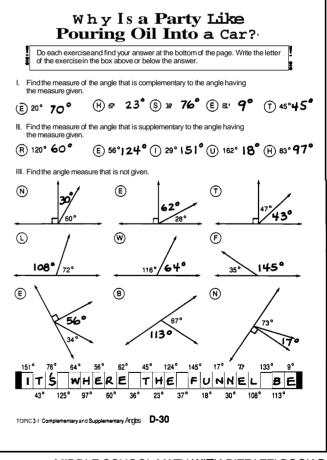


D-27

TOPIC 3-c: Estimating Angle Measurer







ⓓ

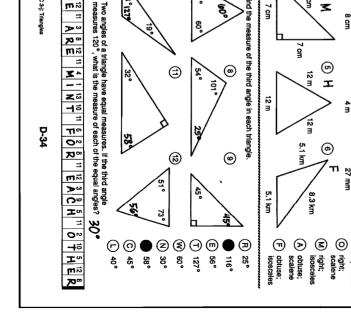
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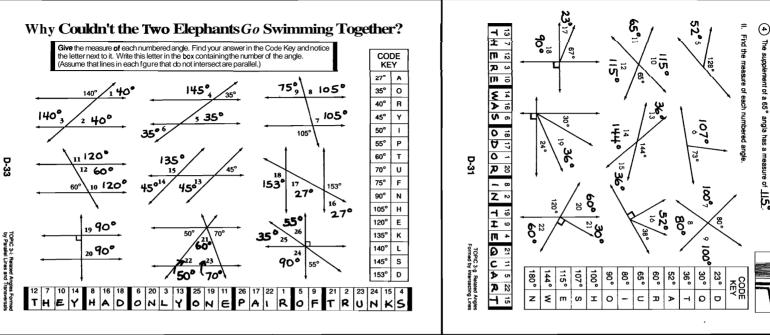


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each triangle two ways.

exercise and find your answer in the set of answers to answer in each box containing the number of the ex shade in each box containing that exercise number.

to the right. Write the exercise. If the answer

4-Y

**(4)** 

3

(G)

エ

12 m

#### What Is The Biggest Problem of Miners? What Did the Boy Candy Say to the Girl Candy? Circle the number-letter pair of each TRUE statement. For these pairs, write the letter in the matching numbered box at the right. I. Use the figure below, in which EF || BH. You should find 11 true statements. 4th Street (EF) intersects (AD) at (C)EB' L'AC' 11-0 FC'IL'HG' 2-H 5th Street 17-E HC L'DB 1-T ) EB II CH 3-A 'BG' ⊥ CH' Ď 16-S CF 11 BE 6th Street 12-A LEBC is a right angle. II. Use the figure above. You should find 4 18-G ∠DCE is a right angle. (13-E )m∠HCB = 90°. 13-L 5th Street is parallel to 6th Street. 8-T LFCH is an acute angle 6-G Street is perpendicular to Elm Avenue. 16-E LECH is an obtuse angle. 10-S Elm Avenue is parallel to Disk Drive. 14-P ∠ABE is an acute angle.

Perpendicularlines intersect to form right angles.

Parallel lines never intersect.

6-L m∠DCH = m∠EBH

(a) ⊒e

ES.

15-F 4th Street and Oak Avenue intersect to

10-C Elm Avenue is parallel to Oak Avenue.

9-N Elm Avenue is perpendicular to Oak Avenue.

form right angles.

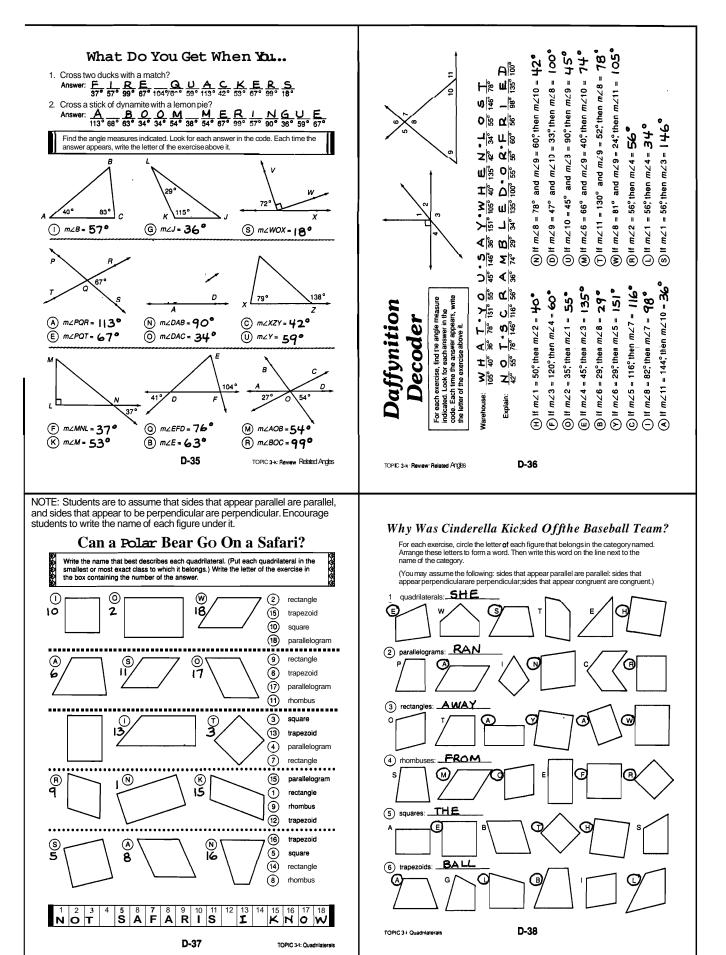
How Did the Judge

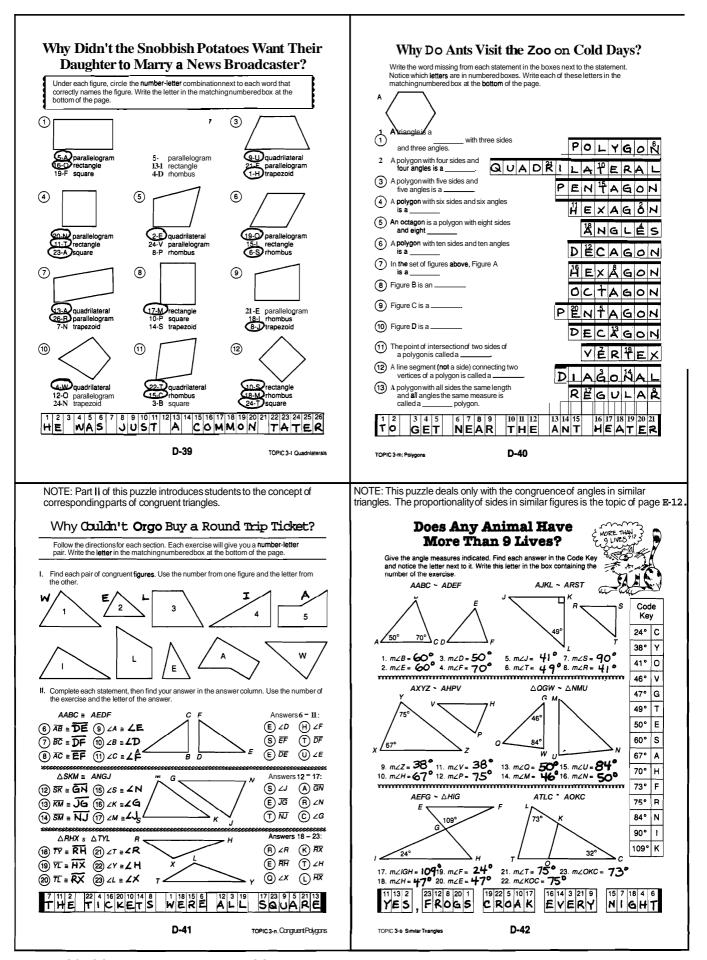
Find

**Out About** 

the Rotten Milk?

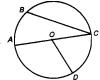
each exercise and find your answer in the Code Key. Notice the answer. Write this letter in the box containing the number for the





#### What Did the Waitress Mean When She Yelled to the Cook: "1 + 1"?

Fill in each blank with one of the answers at the bottom of the page. Then write the letter of the exerciseabove its correct answer.



The figure at the right is a circle with center at O.

- (E) The points on a circle are all the same distance from the
- (\$) A line segment from the center to any point on the circle is a \_\_cadius
- $\overline{\left( \mathbf{U} \right)}$  A line segment with both endpoints on the circle is a
- (II) A chord that passes through the center of a circle is a diameter
- A diameter of the circle in the drawing above is the segment . . .
- Which of the following is not a chord:  $\overline{BC}$ ,  $\overline{OA}$ , or  $\overline{AC}$ ?
- (E) An angle whose vertex is at the center of a circle is a central angle.
- S Points A, B, C, and Dare all the same distance from point O.
- $\bigcirc$  If the length of  $\overline{AC}$  is 20 cm, then the length of  $\overline{OC}$  is  $\underline{IOCCC}$ .
- (N) If the length of  $\overline{OA}$  is 20 cm, then the length of  $\overline{OD}$  is  $\underline{20 \text{ cm}}$ .
- (W) If the length of  $\overline{\it OD}$  is 20 cm, then the length of  $\overline{\it AC}$  is  $\underline{\mbox{40 cm}}$ .
- L The length of a radius is \_\_half\_ the length of a diameter. The set of points in a plane at a fixed distance from a given point is a **circle**.

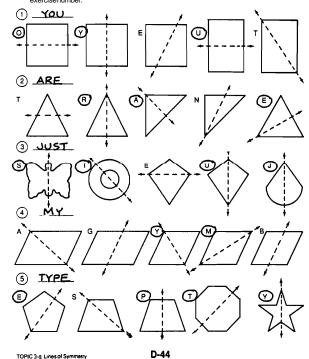
0	7	Е		٥	L	C	S		o	Ν	Е		1	S		S	Т	E	W
10°cm	arc	center	ray	BCA	half	shord	OA	<i>00</i> 07	<u>AC</u>	20 cm	central angle	00	armeter	distrance	80 cm	radius	circle	<u>36</u>	40 cm

D-43

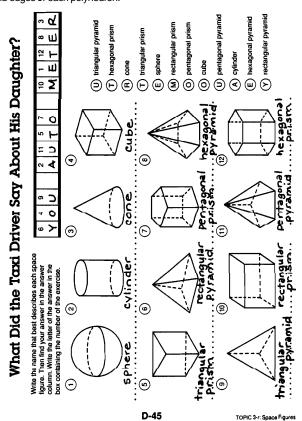
TOPIC3-p Circles

#### What Did the Secretary Say 🔈 to Her Boy Friend?

For each exercise, circle the letter of each figure that is divided by a line of symmetry. Arrange these letters to form a word. Then write this word on the line next to the exercise number.



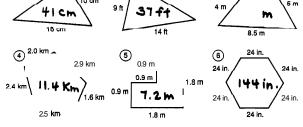
NOTE: Encourage students to write the name of each figure under it. You may. want to have students make a table giving the number of faces, vertices, and edges of each polyhedron.



#### Why Did the River Guide Carry a Rifle?

Find the PERIMETER of each figure. 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.

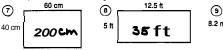
2



Find the perimeter of each rectangle.

(13) Find the perimeter of a sheet of

① 13 cr



(10) ℓ = 48 mm (11) ℓ = 6.2 km 160 mm

21.8 Km (12)  $\ell = 12 \text{ in.}$ w = 12 in. How many feet of border are needed to go around a square bulletin board that is 4.5 ft on each side? 18 ft

3.5 m

3



TOPIC 4-a: Perimeter

NOTE: You might want to have students draw and label a diagram for each exercise What **Is** the Title?

TO FIND 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.





I. Find the perimeter of each figure

- O Triangle with sides of 8.2 cm. 3.9 cm. and 4.5 cm 16.6cm
- G Square with sides of 16.4 m 65.6 m Parallelogram with sides of 230 cm
- A Regular decagon with sides of 0.63 km
- II. Solve.
- The width of a large Americanflag is 8 ft. Its h g t h is 5 ft more than its width. Find its perimeter.
- M The perimeter of a square window is 360 cm. Find the length of one side.
- (R) A pennant is shaped like an isosceles triangle. The short side is 14 in. long and is half the length of each longer side. Find the perimeter of the pennant. **70** in.

Equilateral triangle with sides of 5.25 ft

Regular hexagon with sides | 16.5 in.

B Rectangle with sides of 22 in. and 28 in.

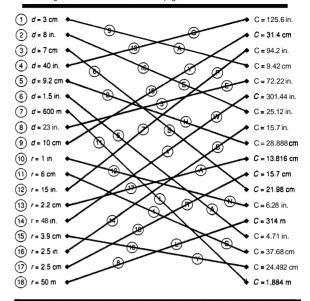
Rhombus with sides of 50 ft 200 ft

- (N) The width of a rectangular poster is 16 in. Its length is twice its width. Find its perimeter.
- The perimeter of a triangle is 38 ft. One side is 14 ft long. Another side is 9 ft long. How long is the third side?
- (S) The longest side of a triangular sail is 9 m long. The second side is 1.5 m shorter than the longest side. The third side is half the length of the longest side. What is the perimeter?

D-47 TOPIC 4-a Perimeter

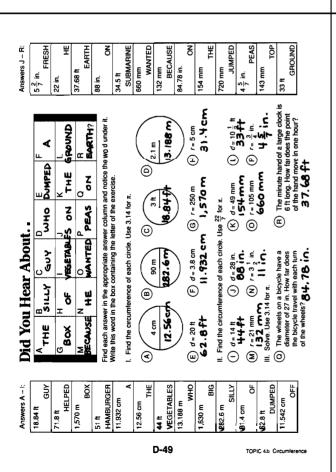
#### Why Did the Piano Player Bang Her Head Against the Keyboard?

Find the circumference (C) of each circle, given the diameter (d) or radius ( $\mathbf{r}$ ).Use 3.14 for  $\pi$ . 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 numberedbox at the bottom of the page.



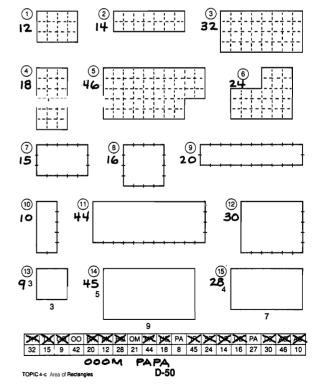
SHE WAS PLAYING

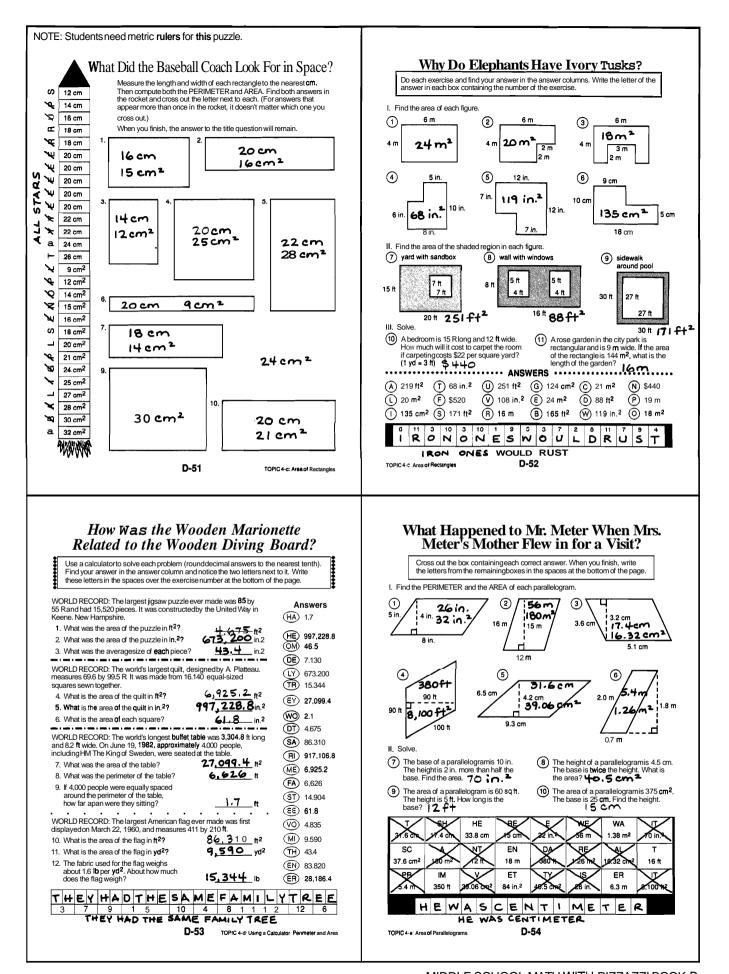
D-48 TOPIC 45 Circumference

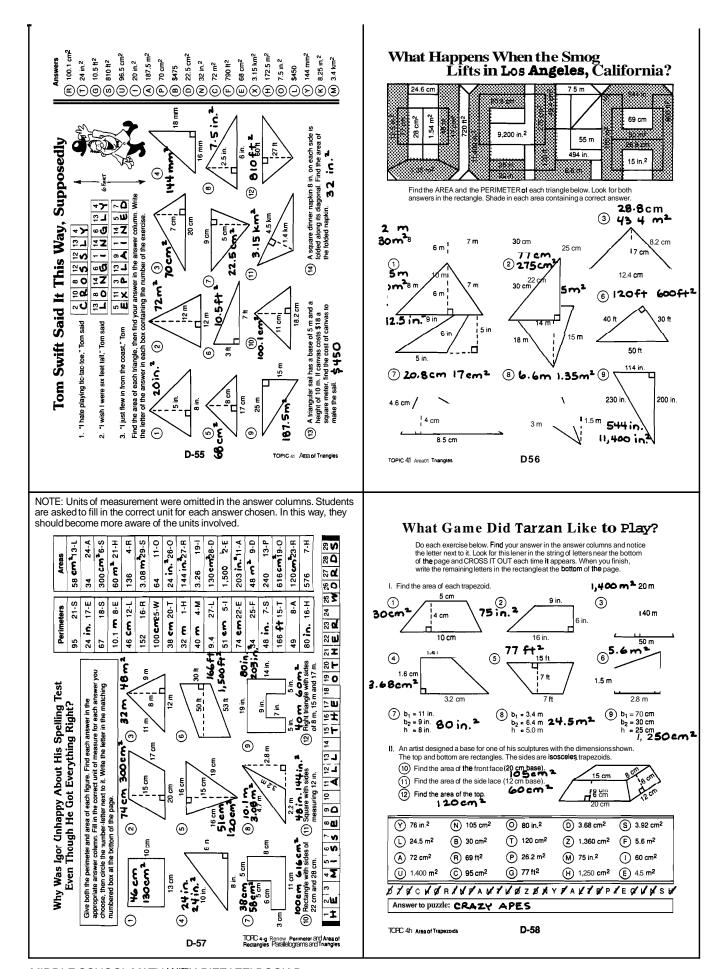


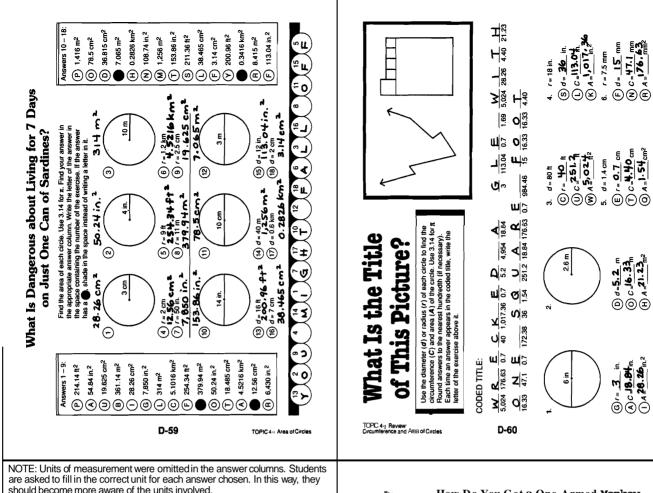
#### What Does a Tuba Call Its Father?

Give the number of square units in each figure. Find your answer and cross out the letters above it. When you finish, the answer to the title question will remain.









should become more aware of the units involved.



Round each answer to the nearest hundredth (if necessary) and find it in the appropriate answer column. Use **3.14** for **n.** Fill in the correct unit of measure for each answer you choose. Write the **letter** of the exercise in the box containing

4. A simple base a realise of 40 in. Finalis		
1. A circle has a radius of 12 in. Find:  (E) The diameter of the circle. 24 in.	Answers 1 - 3:	Answers 4 - 5:
	(4) 27.63 <b>Cm</b>	(15)
<u> </u>	(14) 61.43	6 706.5 <b>ft</b>
The area of the circle. 452.16 in. 2		ı
2. A circle has a radius of 4.4 cm. Find	(16) 30 m	(13) 5,174
(\$) The diameter of the circle. 8, 8	(2) 75.36 in.	5 24.930
The circumference of the circle. 27. 63cm	(12) 461.36	(11) 2.54 <b>Km</b>
H The area of the circle. 60.79 cm²	(21) 8.8 cm	20 0.79
3. A circle has a diameter of 60 m. Find.	19 1	I≌ . I
1) The radius of the circle 30 m	17) 172.4	(19) 0.9 KM
The circumference of the circle. <b>JBB.4m</b>	(13) 24 in.	(18) 942 <b>f</b> †
The area of the circle. 2,826 m2	(9) 60.79 <b>cm</b>	(10) 690.5
4. A circle has a diameter of 18 km. Find.	1 2.826 m	(14) 2.91
O The radius of the circle. O, 9 km	8 452.1 <sub>6</sub>	(15) 5.024
E The circumference of the circle. 5,65 km		
U The area of the circle. 2.54 km	(5) 25.51	3 5.65 Km
5. Solve.	7 188.4 <b>M</b>	17 0.87
B Jack's cow is tied to a beanstalk with a piece	10 2,516	(12) 25,120 mi
of rope that is 15 ft long. What is the area of the circle in which the cow can graze? 7 06.5 ft <sup>2</sup>		
A round game table has a diameter of 1 m. How much in the second se	plastic e	62_
laminate is needed to cover the top of this fable?		A PLICE
S The diameter of the earth at the equator is about 8.000		4.2XV2
Based on this figure, how far is it around the earth? 2.6  P) Radio station KROQ broadcasts in all directions to a dis		
of 40 mi. How many square miles are in the station's br		
(L) WORLD RECORD: The world's largest Ferris Wheel wa	5:024 m, 4	
Londonin 1897 The wheelhad a radius of 150 ft How	far would	
you travel in one tum of this wheel? 942 ff	- 5	,~
1 2 3 4 5 6 7 8 9 10 11 12 13	1 - 1 - 1	18 19 20 21
THEY BOTH USE	PI	LOTS

#### How Do You Get a One-Armed Monkey Down From a Coconut Tree?

Solve each problem. Use 3.14 for n. Find your answer and cross out the letter next to it. When you finish, the answer to the title question will remain.

- Find the diameter of a circle if the circumference is 8 cm. Round to the nearest tenth.  ${\bf 2.5am}$
- Find the diameter of a circle if the **circumference** is **24.5** m. Round to the nearest tenth. **7**
- The largest living thing on earth is a **California** sequoiatree named the "General Sherman." The circumference of its trunk is about 82 it. Find the diameter of the trunk to the nearest whole number. 26 ft
- A revolving water sprthkler sprays water in all directions to a distance of 25 it. What areadoes it cover? Round to the nearest 10 ft². I, 960 ft  $^{\circ}$
- Pizza Mind Pizza sells a large pizza with a diameter of 14 in. and a medium pizza with a diameter of 11 in. Find the following to the nearest whole number:

  A. The area of the large pizza.

  B. The area of the medium pizza.

  C. How much larger is the large pizza?
- Nick Clausplans to have a model train running in a circle around his holiday tree. How many feet of track will he need if the diameter of the circle is 9.5 it? Round to the nearest whole number.

- 593.5cm2 8. The diameter of a basketball hoop is 18 in. The circumference of a basketballis 30 in.
  A. Find the diameter of the basketball. 9.6 in.
  - Round to the nearest tenth.

    B. How much less is the diameter of the basketball than the diameter of We hoop?
- A circle is cut out of a piece of plywood that is 10 in. square. The scraps are thrown away. 7.8.5
  A. Find the area of the circle.
  B. How many square inches of plywood are thrown away? **10** in

TOPIC 4-k: Problem Solving: Mixed Application

95 in.<sup>2</sup>

9.2 in ×

8.4 in.

1,670 ft<sup>2</sup> I -131 in.<sup>2</sup>

9.6 in ゝ

2.5 cm

21.5 in.2 154 in.<sup>2</sup>

593.5 cm<sup>2</sup>

78.5 in.<sup>2</sup> æ

1,960 ft<sup>2</sup>

113.0 cm<sup>2</sup>

28 ft 69.5 in.<sup>2</sup> >

127.2 cm<sup>2</sup>

× 26 ft

• WAVE F X A

> 4 814.5 cm<sup>2</sup> 7.8 m

ø

ኋ

× 59 in.<sup>2</sup>

₹ 30.5 in.2

**D-92** 

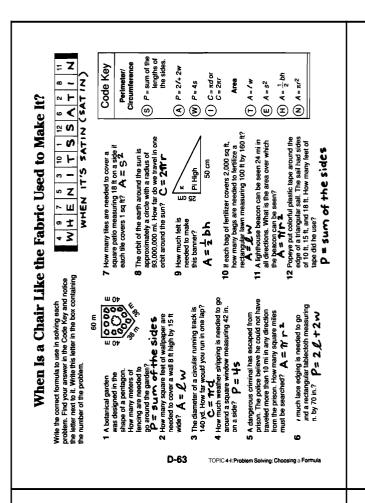
Ī Q 30 ft

۲

706.5 cm<sup>2</sup>

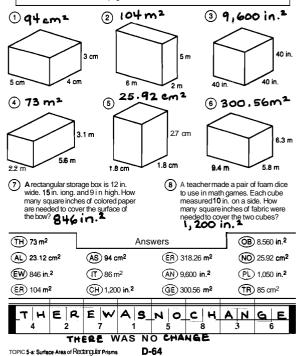
21.5 in.2 D-62

D-61 TOPIC 4-) Review Circumference and Area of Circles



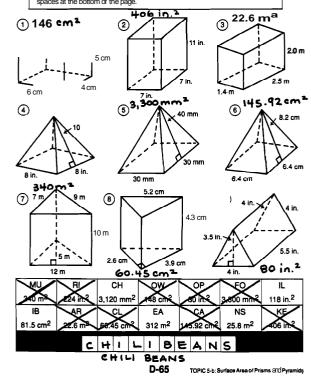
## What Happened to Zelda After She Swallowed Two Nickels, Three Dimes, and a Quarter?

Give the SURFACE AREA of each prism. Find your answer in the answer columns and notice the **two letters** next to it. Write these letters in the spaces over the exercise number **at** the bottom of the page.



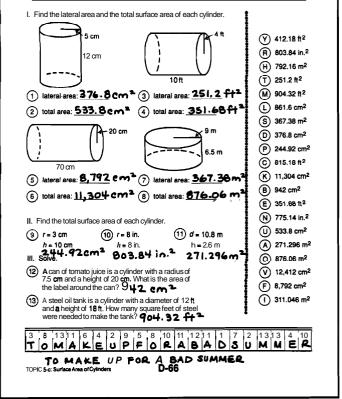


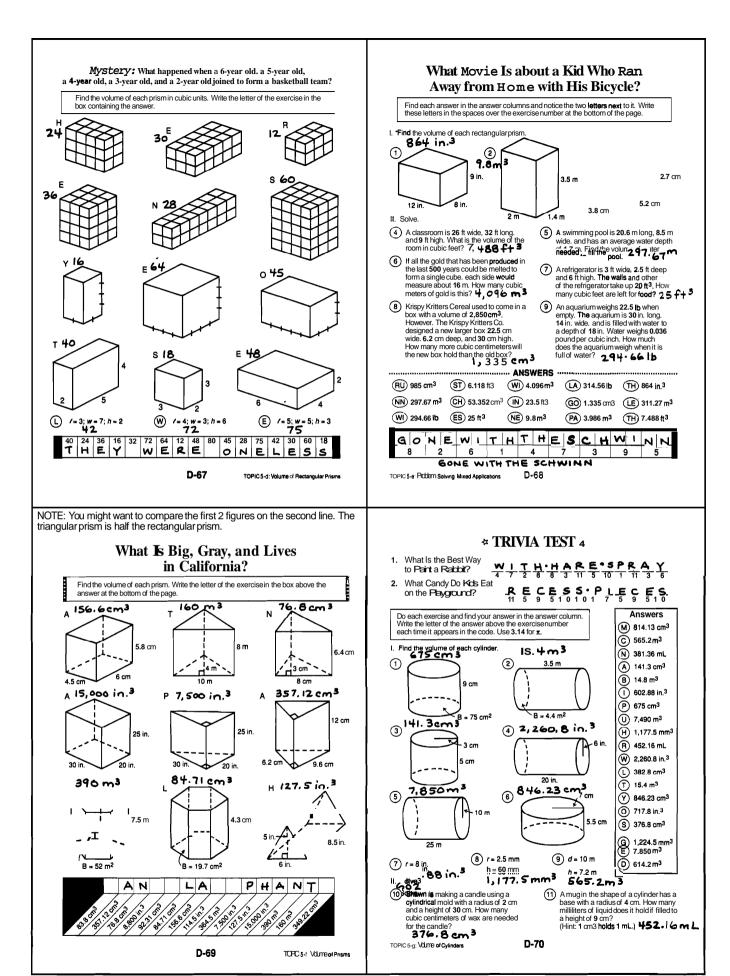
Find the surface area of each figure. Cmss out the box containing each coned answer. **Wben** you finish, **write** the letters from the remainingboxes in the spaces at the bottom of the page.



#### Why Did Humpty Dumpty Have a Great Fall?

Do each exercise and find your answer in the answer column. Write the letter of the answer in each box containingthe number of the exercise. Use 3.14 for  $\pi$ .

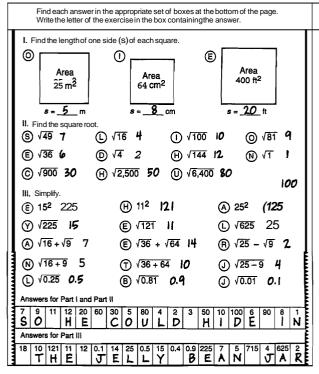




#### Why Did the Elephant Paint His Toenails Red, Green, Yellow, Blue, and Purple?



TOPIC 6-a: Squares and Square Roo



#### Why Did the Teacher Assign Extra Homework When She Taught Adolescents?



⊚ √3 1,2

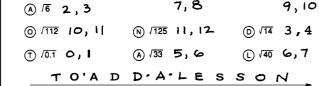
Find which two consecutive whole numbers the square root is between. Write the

Use the top number line for the first set of exercises, and the bonom number line





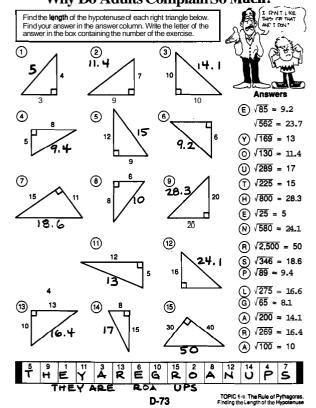
7,8



7 8 9 1 0 1 1 1 2 5 6 D-72 TOPIC 6-a. Squares and Squaw Roots

Why Do Adults Complain So Much?

D-71

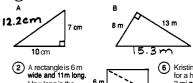


NOTE: Students will need calculators with a square root key or a table of square roots for this puzzle and the 2 that follow.

#### How Would You Describe a Dead Skunk?

Round each answer to the nearest tenth (If necessary). Find each answer at the bottom of the page and cross out the lener above It. When you finish, the answer to the title question will remain.

Find the length of the hypotenuse of each right triangle.



17.0 in

 $\blacksquare$ 

⊞

 $\blacksquare$ 

How long is the diagonal of the rectangle? 12.5m 3 A television screen may be described in **terms** of the diagonal measure of its screen. If a TV screen is 20 in, wide and 15 in. high, what is the **length** of its diagonal? **25 in** 

A quarterbackat

catches it at point B. How long was the pass?

6 Kristin and her family left their campsite for a hike. They hiked 5 mi west and then 2 mi north. How far were they from the campsite? 5. 4 mi 7 The window of a burningbuildingis 40 feet **above** the ground. The base of a ladder is placed 9 feet from the building. How long must the ladder be to

reach tine window 2+

8 filted lapsets klova fassistidilodirahoonel to second base? 127.3 ft A rope is stretched from the top of a 7-foot tent pole to a point on the ground 12 ft from the base of the pole. How long is the rope? 13.9

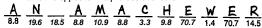
25 yd

The lawn in front of Pythagoras Jr. High is in the shape of a rectangle 24 m long and 10 m wide. How many meters shorter is your walk if you walk diagonally across the lawn rather than along two sides of it?

EXXXXX TXX IX NXX CX TX 12.5 m 16.7 in. 41 ft 12.2 cm 127.3 ft 28.7 yd 129.8 ft 42.5 ft 14.4 ft 17.0 in. 6.1 mi 13.9 ft EXTINCT TOPIC 6-b: The Rule of Pythagoras. Finding the Length of the Hypotenuse D-74

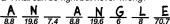
#### Cryptic Quiz

1. What is the opposite of a professional eater?



2 How would you describe a job in the Acme Mitten Co. shipping department?

3. What can be right but never wrong?



For each exercise, find the missing length. (Refer to the diagram at the right.) Round your answer to the nearest tenth (if necessary) and find it in the code. Each time the answer appears, write the letter of the exercise above it.



$$E = 50, b = 50, c = 70.7$$

$$\bigcirc$$
 a = 8, b = 14, c =  $(6.1)$ 

(B) 
$$a = 22.4$$
,  $b = 20$ ,  $c = 30$ 

@ 
$$a = 6.3$$
,  $b = 3$ ,  $c = 7$ 

$$(V)$$
  $a = 6, b = __9.2_{_}, c = 11$ 

(M) 
$$a = 10.9$$
,  $b = 5$ ,  $c = 12$ 

(G) 
$$a = (b - 10)$$

$$\bigotimes a = 19.2$$
,  $b = 16$ ,  $c = 25$ 

© 
$$a = 5, b = 3.3$$
,  $c = 6$ 

(A) 
$$a = 2, b = 8.8, c = 9$$

(a) 
$$a = 4, b = 14, 5, c = 15$$
  
(i)  $a = 12, b = 5, c = 13$ 

ж 49

Ж 120

⋖ 1,160

× 150

× 490

BREAK B R

⋖ 924

172 ш

1.080

520

68

256

74 8

164

864

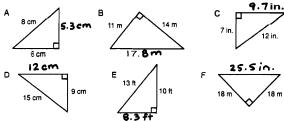
(L) 
$$a = 8$$
,  $b = 15$ ,  $c = 17$   
(N)  $a = 10$ ,  $b = 9$ .  $c = 22$ 

TOPIC 6-c; me Rule of Pythagoras: Finding the Length of a Sie of a Right Triangle

#### What Relation Is a Doorstep to a Doormat?

Round each answer to the nearest tenth (if necessary). Cross out the box containing each answer. When you finish, write the letters from the remainingboxes in the spaces at the bottom of the page.

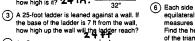
(1) For each right triangle, find the length of the side that is not given.



Yuki just bought a big-screen TV set. The screen has a diagonal measure of 40 in. If the screen is 32 in. wide, how high is it? 24 in.



(5) The mast of a sailing ship is 20 ft tall. A rope is stretched 26 ft from the top of the mast to a cleat on the deck of the ship. How far is the cleat from the base of the How far is the cleat mast? 16.6 ft





of the triangle. 10. 4 cr Two jets left an airport at the same time One traveled east at 300 miles per hour The other traveled south at 400 miles per hour. How far apart were the jets at the end of an hour? 500 mi



520 mi AR EB 87.1 m 18.5 ft ASTEPFARTHER STEP FARTHER

Ŧ

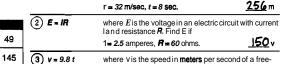
D-76

#### What Does a BONE SPECIALIST Need to Get His Practice Started?

Evaluate each formula below for the given values of the variables Find each answer at the left and cross out the letter next to lt. When you finish, the answer to the title question will remain.



1 d=rt where d is the distance traveled by an object moving at speed r in time t. Find d if



falling object after t seconds. Find vif

49 m/sec t = 5 sec. (4) S = (n-2)180where  $\boldsymbol{S}$  is the sum of the measures of the angles of a polygon with n sides. Find Sif

n = 8. $(5) A = 6e^2$ where A is the surface area of a cube with edge **e**. Find A if

e = 12 cm. (6) V= hw2 where V is the volume of a prism with a square base of side wand wilh height h. Find Vif

h = 10 cm, w = 7 cm.where L is the approximate length of a skid in feet for a car traveling at s miles per hour. Find L if 7 L= 32

120 ft s = 60 mi/h. where **F** is the Fahrenheittemperature equivalent to Celsius temperature C Find Fif (8) F= 1.8C+ 32 <u>68</u>°F  $C = 20^{\circ}$ 

where B is the recommended maximum heart rate during exercise for a **person** y years old. Find B if 9 <u>4(220</u><u>-v</u>

> D-77 7-a: Formulas

#### \*\*\* Test of Genius \*\*\*

1 Identical cubes are stacked in the corner of a room as shown. How many cubes are there altogether?

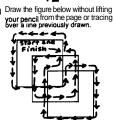


(2) Make this equation correct by changing the position of only one digit.

#### 101-102=1

(3) Ms. Smucker went to a store, spent half of her money and then \$10 more. She went to a second store, spent half of her remaining money and then \$10 more. But she then had no money left. How much money did she have to begin with? \$ 60

(4) If 8 widgets equal 4 curlicues and 2 curlicues equal 3 goofups, then 16 widgets equal how many goofups?



TOPIC 7-b: Test of Genius

Genius \*\*\*

(6) Steven has 9 gold coins that are identical in appearance. However, one coin is counterfeit and weighs slightly less than the others. Using a balance scale, how can he find the counterfeit be I set a top the other lighter



tage the stage of 
balance, nagainst

9 5 6 5

+2 ke

3 sets of 3.

7 In the folio letters A, B, and C stand for three different digits. What digit should replace each letter?

B The teacher noticed there wen fewer than 100 students on the playground. When she counted them by 2s. there was 1 studentleft over. In fact, when Me counted them by 3s. tayled the tover. How many students were on the playground?

9 In the Hope family there are seven sisters, and each sister has one brother. Including Mr. and Mrs. Hope, how many are in the family?

#### SCORING KEY 8 or 9 — Superstar Genius 6 or 7 — Star Genius

4 or 5 — Genius 3 or less — Genius of the Future