

**Name** \_\_\_\_\_ **Date** \_\_\_\_\_

*Parent Signature* \_\_\_\_\_

## **REGION #16**

# **SUMMER MATH PACKET**

for Students entering

# **Grade 7**

Dear Student (and Parent),

This packet is a requirement. It contains all types of problems to help you review and prepare for math in 7<sup>th</sup> grade. It is important that you try each question. When you return to school in August, your 7<sup>th</sup> grade teacher will collect and check your packet for completion.

Try your best and remember to bring back your packet on the first day of school!

Thank you!!

To the Parents:

## School & Home Connections Working Together for Mathematics Success

MENTION MATHEMATICS and many of us shudder. We remember trying to do boring number exercises or trying to remember rules that did not make any sense. Times have changed. The mathematics needed today is different from what our parents needed a generation ago. In our everyday lives we manage resources, track schedules, make decisions based on data and probabilities, and much more. We work with calculators and computers, and other electronic communications and technologies that just weren't around when most of us were in school.

It is important to encourage children to think of themselves as mathematicians who can reason and solve problems. Mathematics is their key to the future. Research has shown that parents who show interest in mathematics have children who produce higher math scores on standardized tests. We know that not all parents have a *passion* for mathematics but there *are* some things you can do:

- Show your children that you like numbers. (No, not taxes and bills!) Play number games or puzzles, and search for numbers on license plates, road signs, and cereal boxes.
- Tell children anyone can learn math. Point out life math, such as measuring and cooking, estimation of time and expenses, gas and mileage, (setting the share your woes with balancing a checkbook!)
- Help children to do math in their heads with lots of small numbers. Ask questions: "If I have 4 cups and I need 7, what do I have to do?" or "If I need 12 drinks for the picnic, how many packages of 3 drinks will I need?"
- And you can support "*The Summer Math Packet*" ...

## **Why Summer Math Packets? Isn't it time to rest and relax?**

First, parents have requested materials that students can do over the summer months. They haven't always been sure that commercial materials, such as those available in supermarkets, are good for their children. And they're right to question some of those materials. So, we have tried to save parents the time and trouble and expense by assembling materials for them.

Second, we have a need to improve our Connecticut Mastery Test scores. Each year, teachers, students, principals and administration, make a tremendous effort to improve scores. Though we cannot say that there was a direct relationship to the Summer Math Packets, *we do know that our scores have improved!* It is going to take this kind of effort to keep those scores up and getting them higher.

The Connecticut Mastery Test (CMT) is a barometer that is meant to ensure excellence in mathematics education. We know that the CMT, and therefore the textbooks, district goals, building plans, and student interests, all emphasize that students need to learn how to solve problems, reason, communicate mathematically, and connect their studies to other areas of mathematics, other subject areas, and the real world. You will see a shift towards mathematical ideas and concepts. Students are involved in mathematical problems that use a variety of tools and strategies that are mathematical. *There may or may not be just one right answer or solution. We have tried to vary the activities and questions to reflect a high interest and still cover the objectives of the Connecticut Mastery Test.*

**Doing the packet is very important.....when your child returns to school at the end of the summer, his/her teacher will correct the contents. The packet is also used as one source of review to prepare for the CMT and the coming school year. Your child should get a *Certificate of Completion* for returning the packet. Hopefully, it will be completed to the best of your child's ability. More importantly, your child will have the confidence for the Connecticut Mastery Test and the mathematics to be learned that year and in the future.**

## *Frequently Asked Questions and Answers*

*Question: What is the Connecticut Mastery Test?*

*Answer:* The Connecticut mastery test (CMT) is a test by the Connecticut State department of Education to measure student achievement in mathematics, reading, and writing. To help your child do well on the math portion of the test, we have put together a summer packet that covers some of the objectives of the CMT.

*Question: What will happen to the Summer Math Packet when the children return to school?*

*Answer:* When your children return to school at the end of the summer, we expect to use these materials as one source to review for the CMT. Additionally, they will get a Certificate of Completion when they return it on the first day of school.

*Question: What if I don't know the math or never found math to be my favorite subject?*

*Answer:* We are asking you to encourage your children to think of themselves as mathematicians who can reason and solve problems. Mathematics is their key to the future. Parents who communicate the importance of mathematics to their children can help them develop confidence in their own math ability no matter what the parent's comfort level. We need you to support this packet.

*Question: Isn't this a lot to expect in one summer? Do they have to do it all?*

*Answer:* We do not expect students to do it all in one day! Or one sitting! Or the last week! Spread it out over the span of two summer months. You know your children best. We expect a good effort from your children to complete it and return with it.

*Question: Can't we have an answer key?*

*Answer:* We are interested in assessing what your children have actually learned and retained. The packet will be an important tool for the classroom teacher to design lessons appropriate for the needs of the children in the class. Therefore, focus in on the children's attempting the work to the best of his/her ability. The assessment will tell where the child is, so we really want it to be your children's work.

## Helping at Home

Parents ask how they can help their children with mathematics at home. It can be hard not to "tell" your children how to do the math even if you want your children to figure it out for themselves. Some of the math may even look unfamiliar. But you can help by asking questions that guide your children without telling them what to do.

Good questions--and good listening--will help your children make sense of the mathematics, build their confidence, and encourage mathematical thinking and communication.

A good question opens up a problem and supports different ways of thinking about it. Here are some you might try notice that none of them can be answered with a simple "yes" or "no".

### Getting Started

*What do you know now?*

*What do you need to find out?*

*How might you begin?*

### While Working

*How can you organize your information?*

*Can you make a drawing (model) to explain your thinking?*

*Are there other possibilities?*

*What would happen if...?*

*Can you describe the approach (strategy) you're developing to solve this?*

*What do you need to do next?*

### Reflecting about the Solution

*Is your solution (conclusion) reasonable?*

*How did you arrive at your answer?*

*Can you convince me your solution makes sense?*

*What did you try that didn't work?*

### Responding

Try to avoid stopping as soon as you hear the "right" answer. Responses like these give your children a chance to clarify their thinking.

*Why do you think that?...*

*Tell me more.*

*Can you explain that in a different way?*

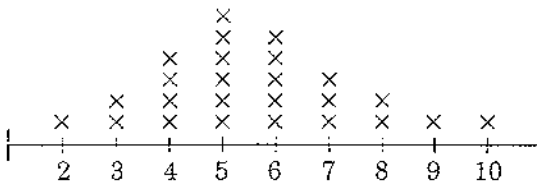
**DIRECTIONS**

Read each question and determine the best answer.  
Some concepts will have a brief explanation or strategy. Review the strategy before trying the problems.

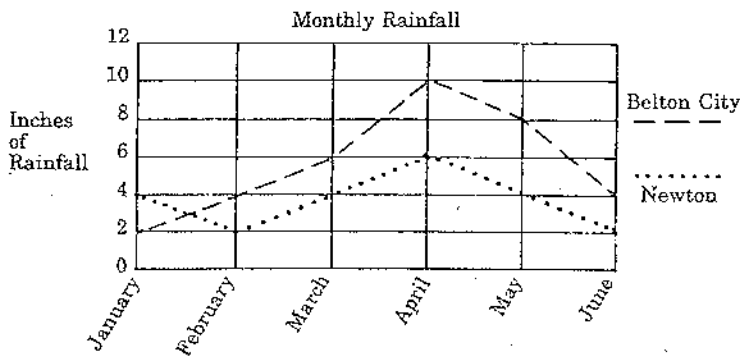
**CONCEPT:  
STATISTICS & DATA ANALYSIS**

1 What is the mode of the data?

Glasses of Water Students Drink per Day



- (A) 4
- (B) 5
- (C) 6
- (D) 7



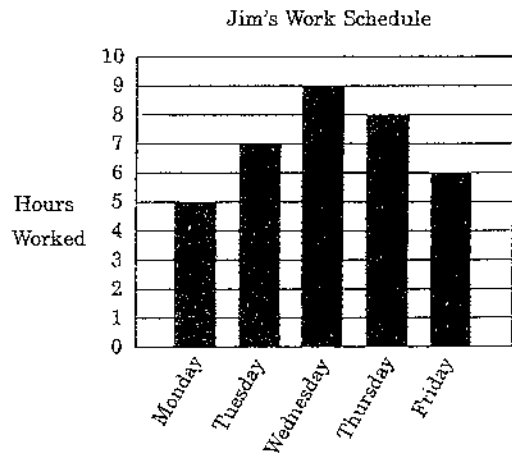
2 How many more inches of rain did Belton City get than Newton got in April?

- (E) 10 inches
- (F) 6 inches
- (G) 2 inches
- (H) 4 inches

	1983	1984	1985	1986
Jim's Bike Shop	11,000	18,000	24,000	29,000
Paul's Cleaners	18,000	32,000	23,000	27,000
William's Camera	15,000	22,000	28,000	35,000

3 In 1984, how much more did Paul's Cleaners earn than Jim's Bike Shop?

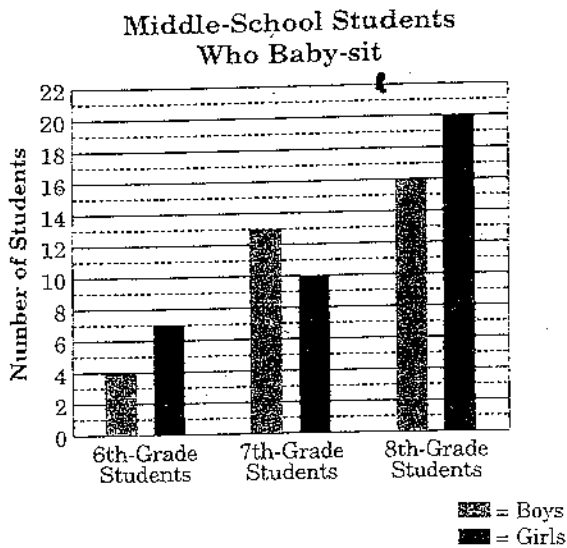
- (A) \$14,000
- (B) \$4000
- (C) \$10,000
- (D) \$7000



4 How many hours did Jim work all week?

- (B) 35 hours
- (F) 40 hours
- (G) 27 hours
- (H) 29 hours

5. Which statement is true?

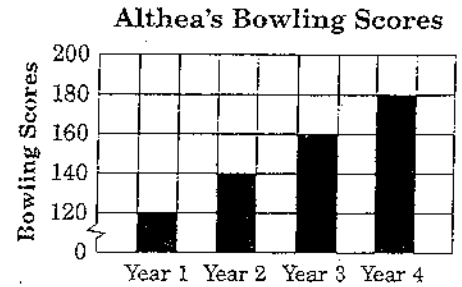


- (A) More middle-school boys baby-sit than do middle-school girls.
- (B) Sixth-grade boys are the largest group of students who baby-sit.
- (C) More sixth-grade boys baby-sit than do eighth-grade boys.
- (D) Eighth-grade girls are the largest group of students who baby-sit.

6. Use the graph in question 9 to answer this question. How many more eighth-grade boys baby-sit than sixth-grade boys?

- (A) 13
- (B) 17
- (C) 12
- (D) 14

7. The bar graph shows Althea's highest bowling score for four different years. Which statement is not true?

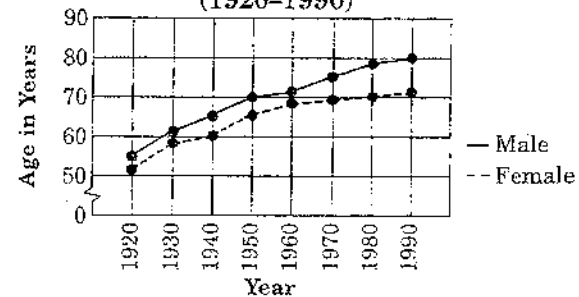


- (A) The high score in year 3 was twice the high score in year 1.
- (B) The score got higher each year.
- (C) The score increased by 20 each year.
- (D) The highest bowling score was 180.

8. The line graph shows the life expectancy in the United States of males and females from 1920 to 1990.

In which of the following years was the difference in life expectancy between males and females the greatest?

**Life Expectancy in the USA (1920-1990)**



- (A) 1930
- (B) 1950
- (C) 1970
- (D) 1980

9. Tables, Graphs and Charts

- Identify correct information from graphs, tables and charts:

Based on the data in the stem and leaf, plot how many trees were under 6 feet tall?

Height in Inches

5	2	3	3
6	8	9	
7	0	1	1 2 2 2 2
8	0	7	8
9	3		

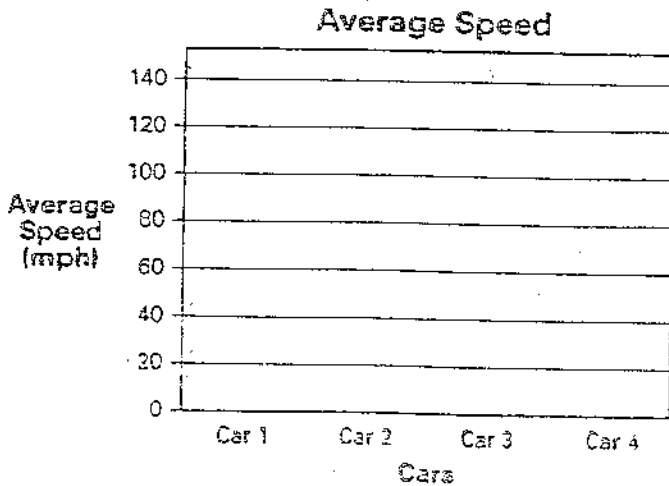
- (A) 4
- (B) 6
- (C) 8
- (D) 10

10. Tables, Graphs and Charts

Create graphs from data in tables and charts

The table shows the AVERAGE speeds for the FIRST 4 finishers in a car race. Complete the BAR GRAPH to show the same information.

Car	Average Speed (mph)
1	118
2	126
3	132
4	122



## CONCEPT: ESTIMATION

### STRATEGIES AND TIPS FOR ESTIMATING

- The basic strategy for estimating is to follow the hints given. Here they are again for you to review:
  - Get rid of decimals.*
  - Round larger numbers to the nearest tens or hundreds place.*
  - Sometimes you only need to round one number.*
  - Use these same methods when you work with estimating problems that involve fractions, percents, or more than one step.*
- On a test, don't try to do estimating problems completely in your head. Rewrite each problem, using the numbers you will use to estimate the answer. (For example, you would rewrite  $19 \times 21$  as  $20 \times 20$ .) Rewriting keeps you from making mistakes.
- Be careful of zeros! When you estimate the answer to a problem like  $79 \times 196$ , you will be in danger of putting the wrong number of zeros in the answer. The way to overcome the problem is to write it down, following Strategy No. 2, above.
- The correct answer choice on a test might be slightly different from your own estimate. If so, pick the answer closest to your estimate. If it makes sense, it's probably correct.
- Look out for the following kinds of wrong answer choices, which are put in to confuse you:
  - Answers with the wrong number of zeros or a misplaced decimal.*
  - Answers you get if you don't round down or up correctly.*
  - Answers you get from simple errors in calculation.*

### DIRECTIONS

Read each question. Circle the correct answer.

- 1 ABOUT how much is  $2.09 \times 68$ ?

A 1400  
B 210  
C 140  
D 21

- 2 Estimate the answer:  $\frac{194 + 607}{19}$

E 20  
F 40  
G 200  
H 400

- 3 Which is the best estimate of the product of  $153 \times 298$ ?

A 30,000  
B 40,000  
C 45,000  
D 60,000

- 4 ABOUT how much is 75% of \$9.88?

E \$75.00  
F \$7.50  
G \$5.00  
H \$6.30

5 Round 273.89 to the nearest whole number.

- A 273
- B 273.8
- C 273.9
- D 274

6 Round 7.029 to the nearest hundredth.

- E 7.03
- F 7.02
- G 7.0
- H 7.1

7 Round 208.43 to the nearest tens place.

- A 209.4
- B 209.5
- C 208
- D 210

8 Round 2.0935 to the nearest thousandth.

- E 2.1
- F 2.093
- G 2.0936
- H 2.094

9. Round both numbers to the nearest hundred and multiply:

$$93 \times 237$$

- A 22,041
- B 20,000
- C 20,700
- D 21,600

10. Round both numbers to the nearest tenth and find the difference:

$$\begin{array}{r} 17.152 \\ - 6.534 \\ \hline \end{array}$$

- E 10.0
- F 10.6
- G 10.7
- H 10.17

## CONCEPT: OPERATIONS WITH FRACTIONS

### STRATEGIES AND TIPS:

When adding and subtracting fractions, you must have a common denominator.

When multiplying fractions, multiply the numerators, then the denominators. Remember to simplify.

When dividing fractions, multiply by the reciprocal of the second fraction. (DROP, SWITCH, FLIP)

1 Solve and simplify.

$$\begin{array}{r} 8\frac{2}{3} \\ + 7\frac{1}{2} \\ \hline \end{array}$$

- A  $16\frac{1}{6}$
- B  $15\frac{2}{3}$
- C  $15\frac{3}{5}$
- D  $15\frac{1}{6}$

2 Solve and simplify.

$$\begin{array}{r} 7 \\ - 5\frac{3}{7} \\ \hline \end{array}$$

- E  $2\frac{3}{7}$
- F  $1\frac{4}{7}$
- G  $2\frac{4}{7}$
- H  $12\frac{3}{7}$

3 Solve and simplify.

$$\frac{2}{7} \times \frac{5}{8}$$

- A  $\frac{7}{15}$
- B  $\frac{5}{56}$
- C  $\frac{16}{35}$
- D  $\frac{5}{28}$

4 Solve and simplify.

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

E 6

F 7

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

H  $5\frac{3}{5}$

5 Solve and simplify.

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

A  $\frac{3}{20}$

B  $\frac{5}{48}$

C  $\frac{3}{20}$

D  $\frac{5}{14}$

6 Which of these fractions has the least value?

E  $\frac{3}{4}$

F  $\frac{9}{16}$

G  $\frac{5}{8}$

H  $\frac{1}{2}$

**Directions**

Read each question. Circle the correct answer.

<p><b>7.</b> Which fraction has the smallest value?</p> <p>(a) <math>\frac{3}{4}</math>                      (c) <math>\frac{1}{2}</math></p> <p>(b) <math>\frac{2}{5}</math>                      (d) <math>\frac{5}{6}</math></p>	<p><b>10.</b> Which fraction is equal to <math>3\frac{2}{3} \times \frac{2}{5}</math>?</p> <p>(a) <math>\frac{12}{15}</math>                      (c) <math>1\frac{7}{15}</math></p> <p>(b) <math>\frac{3}{5}</math>                      (d) <math>1\frac{5}{8}</math></p>
<p><b>8.</b> Add: <math>5\frac{3}{4}</math> <math>+ 2\frac{1}{3}</math> <hr/></p> <p>(a) <math>3\frac{5}{12}</math>                      (c) <math>7\frac{1}{12}</math></p> <p>(b) <math>9\frac{5}{12}</math>                      (d) <math>8\frac{1}{12}</math></p>	<p><b>11.</b> Divide: <math>\frac{1}{4} \div 8</math></p> <p>(a) <math>\frac{1}{32}</math>                      (c) <math>\frac{1}{4}</math></p> <p>(b) <math>\frac{1}{12}</math>                      (d) 32</p>
<p><b>9.</b> What is the difference between 26 and <math>3\frac{3}{4}</math>?</p> <p>(a) <math>23\frac{3}{4}</math>                      (c) <math>22\frac{1}{4}</math></p> <p>(b) <math>23\frac{1}{4}</math>                      (d) <math>22\frac{3}{4}</math></p>	<p><b>12.</b> Dennis spent <math>1\frac{1}{4}</math> hours each day practicing basketball for 5 days. What is the total number of hours Dennis practiced?</p> <p>(a) <math>4\frac{1}{2}</math>                      (c) <math>6\frac{1}{4}</math></p> <p>(b) <math>\frac{5}{4}</math>                      (d) <math>5\frac{1}{2}</math></p>

**CONCEPT:  
CONVERTING FRACTIONS, DECIMALS, PERCENT**

**STRATEGIES AND TIPS**

1. TO CHANGE A FRACTION TO A DECIMAL, DIVIDE THE NUMERATOR BY THE DENOMINATOR.
2. TO CHANGE A DECIMAL TO A PERCENT, MOVE THE DECIMAL POINT 2 PLACES TO THE RIGHT. YOU ARE ACTUALLY MULTIPLYING BY 100 TO MOVE THAT DEC. PT.
3. TO CHANGE A PERCENT TO A DECIMAL, MOVE THE DECIMAL POINT 2 PLACES TO THE LEFT. YOU ARE ACTUALLY DIVIDING BY 100 TO MOVE THAT DEC. PT.

BELOW IS A TABLE OF COMMON FRACTIONS WITH THE DECIMAL AND PERCENT EQUIVALENTS.

TABLE OF COMMON EQUIVALENT NUMBERS			
	Fraction	Decimal	Percent
HALF	$\frac{1}{2}$	= .5	= 50%
QUARTERS	$\frac{1}{4}$	= .25	= 25%
	$\frac{3}{4}$	= .75	= 75%
FIFTHS	$\frac{1}{5}$	= .2	= 20%
	$\frac{2}{5}$	= .4	= 40%
	$\frac{3}{5}$	= .6	= 60%
	$\frac{4}{5}$	= .8	= 80%
EIGHTHS	$\frac{1}{8}$	= .125	= 12.5%
	$\frac{3}{8}$	= .375	= 37.5%
	$\frac{5}{8}$	= .625	= 62.5%
	$\frac{7}{8}$	= .875	= 87.5%
TENTHS	$\frac{1}{10}$	= .1	= 10%
	$\frac{3}{10}$	= .3	= 30%
		etc.	
THIRDS	$\frac{1}{3}$	= .3333... (often rounded down to .33)	= $33\frac{1}{3}\%$
	$\frac{2}{3}$	= .6666... (often rounded up to .67)	= $66\frac{2}{3}\%$



## PRACTICE

Convert the decimals to percents.

1. .32 \_\_\_\_\_
2. .87 \_\_\_\_\_
3. .08 \_\_\_\_\_
4. .241 \_\_\_\_\_
5. .453 \_\_\_\_\_
6. .38 \_\_\_\_\_
7. .1032 \_\_\_\_\_
8. .9 \_\_\_\_\_

Convert the percents to decimals.

9. 65% \_\_\_\_\_
10. 43% \_\_\_\_\_
11. 92.3% \_\_\_\_\_
12. 40% \_\_\_\_\_
13. 4% \_\_\_\_\_
14. 0.4% \_\_\_\_\_
15. 0.04% \_\_\_\_\_
16. 65.97% \_\_\_\_\_

Write the decimals as fractions in lowest terms. (It helps if you have memorized the table on the previous page.)

17. .41 \_\_\_\_\_
18. .6 \_\_\_\_\_
19. .25 \_\_\_\_\_
20. .875 \_\_\_\_\_
21. .32 \_\_\_\_\_
22. .55 \_\_\_\_\_
23. .09 \_\_\_\_\_
24. .64 \_\_\_\_\_

Convert the fractions to decimals.

25.  $\frac{2}{5}$  \_\_\_\_\_

26.  $\frac{1}{2}$  \_\_\_\_\_

27.  $\frac{11}{25}$  \_\_\_\_\_

28.  $\frac{19}{25}$  \_\_\_\_\_

29.  $\frac{7}{50}$  \_\_\_\_\_

30.  $\frac{39}{100}$  \_\_\_\_\_

31.  $\frac{14}{25}$  \_\_\_\_\_

32.  $\frac{1}{5}$  \_\_\_\_\_

Convert the fractions to percents, by changing to a decimal first.

33.  $\frac{3}{4}$  \_\_\_\_\_

34.  $\frac{1}{2}$  \_\_\_\_\_

35.  $\frac{1}{20}$  \_\_\_\_\_

36.  $\frac{9}{25}$  \_\_\_\_\_

37.  $\frac{31}{50}$  \_\_\_\_\_

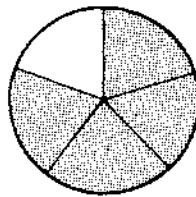
38.  $\frac{67}{100}$  \_\_\_\_\_

39.  $\frac{1}{5}$  \_\_\_\_\_

40.  $\frac{9}{10}$  \_\_\_\_\_

Answer the following questions:

41. What percent of the following figure is shaded? \_\_\_\_\_



$$\frac{4}{5}$$

four out of five  
is what %

10.

**CONCEPT:  
CUSTOMARY AND METRIC MEASUREMENT**

TABLE OF CONVERSION		
<b>CUSTOMARY</b>	<b>Distance</b>	<b>Abbreviations</b>
	12 inches = 1 foot 3 feet = 1 yard 36 inches = 1 yard 5,280 feet = 1 mile 1,760 yards = 1 mile	inch = in. foot = ft. yard = yd. mile = mi.
	<b>Volume</b>	<b>Abbreviations</b>
	8 fluid ounces = 1 cup 16 fluid ounces = 1 pint 2 cups = 1 pint 32 ounces = 1 quart 4 cups = 1 quart 2 pints = 1 quart 16 cups = 1 gallon 8 pints = 1 gallon 4 quarts = 1 gallon	fluid ounce = fl. oz. or oz. pint = pt. quart = qt. gallon = gal.
	<b>Weight</b>	<b>Abbreviations</b>
	16 ounces = 1 pound	ounce = oz. pound = lb.
<b>METRIC</b>	<b>Distance</b>	<b>Abbreviations</b>
	10 millimeters = 1 centimeter 100 centimeters = 1 meter 1,000 millimeters = 1 meter 1,000 meters = 1 kilometer	millimeter = mm centimeter = cm meter = m kilometer = km
	<b>Volume</b>	<b>Abbreviations</b>
	1,000 milliliters = 1 liter	milliliter = ml liter = l
	<b>Mass</b>	<b>Abbreviations</b>
	1,000 grams = 1 kilogram	gram = g kilograms = kg

- When you go from a **big measurement** (like a mile) to a **smaller one** (like a foot), you **multiply by the conversion factor**. For example:

$$\begin{array}{c} \text{Conversion} \\ \text{Factor} \end{array}$$

$$2 \text{ miles} \times 5280 = 10,560 \text{ feet}$$

- When you go from a **small measurement** (like an ounce) to a **larger one** (like a pound), you **divide by the conversion factor**. For example:

$$\begin{array}{c} \text{Conversion} \\ \text{Factor} \end{array}$$

$$32 \text{ ounces} \div 16 = 2 \text{ pounds}$$

### DIRECTIONS

Read each question. Circle the correct answer.

Refer to the Table of Conversion on the previous page if you need to.

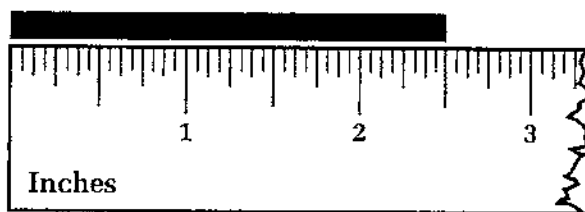
1. Last week, Mike weighed 168 pounds 13 ounces. This week, he weighs 171½ pounds. How many ounces did he gain?

A 53 ounces  
B 69 ounces  
C 43 ounces  
D 24 ounces

2. If Dana ran 1 mile and walked 420 yards, how many feet has she traveled?

E 6540 feet  
F 1260 feet  
G 5700 feet  
H 5280 feet

3. What is the length of the line segment below?



- (a)  $2\frac{1}{4}$  inches      (c)  $2\frac{1}{2}$  inches  
(b) 2 inches      (d)  $2\frac{10}{16}$  inches

4. If Corey had an 8-kilogram rock that he broke into 4 equal pieces, what is the mass, in grams, of each piece of rock?

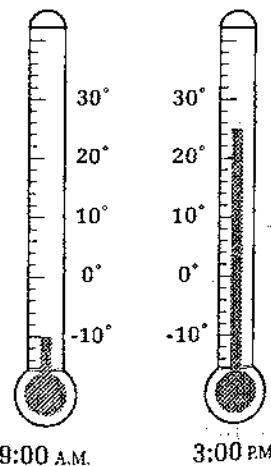
A 3200 grams  
B 8000 grams  
C 4000 grams  
D 2000 grams

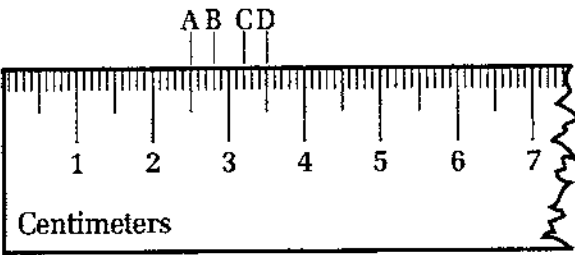
5. It took Margaret 2 work-days plus 3 hours to build a deck. If there are 8 hours in a work-day, how many minutes did it take Margaret to build the deck?

E 1140 minutes  
F 465 minutes  
G 1900 minutes  
H 3060 minutes

6. The diagram below shows the thermometer at 9:00 A.M. and at 3:00 P.M. one day. How many degrees did the temperature increase from 9:00 A.M. to 3:00 P.M.?

- (a) 15°  
(b) 10°  
(c) 25°  
(d) 35°



<p>7. Which unit is used to measure the capacity of a container filled with orange juice?</p> <p>(a) meter                      (c) inch (b) gram                        (d) liter</p>	<p>12. How many centimeters are equal to 50 meters?</p> <p>(a) 50                              (c) 5,000 (b) 500                            (d) 50,000</p>
<p>8. Which unit of measure should be used to express the distance from Boston, MA, to Washington, D.C.?</p> <p>(a) centimeter                  (c) milligram (b) liter                            (d) kilometer</p>	<p>13. Andrea left her home at 10:15 A.M. to do errands and arrived home at 1:45 P.M. How long was she away from home?</p> <p>(a) 12 hours and 30 minutes (b) 5 hours and 30 minutes (c) 4 hours and 30 minutes (d) 3 hours and 30 minutes</p>
<p>9. Which is not a unit in the metric system?</p> <p>(a) liter                            (c) gram (b) quart                          (d) meter</p>	<p>14. Which is a measure of length?</p> <p>(a) gram                            (c) meter (b) liter                            (d) Celsius</p>
<p>10. Which point on the ruler below represents 3.2 centimeters?</p>  <p>(a) A                                (c) C (b) B                                (d) D</p>	<p>15. Which is equal to 2.75 kilometers?</p> <p>(a) 275 m                          (c) 27.5 m (b) 2,750 m                        (d) 0.275 m</p>
<p>11. How many millimeters are equal to 30 centimeters?</p> <p>(a) 10                                (c) 100 (b) 30                                (d) 300</p>	<p>16. In the morning, the temperature was 6°C. By afternoon, the temperature had risen to 36°C. How many degrees did the temperature increase during that day?</p> <p>(a) 30                                (c) 31 (b) 36                                (d) 42</p>

**CONCEPT:**  
**GEOMETRIC SHAPES, PROPERTIES, AND MEASUREMENT**

---

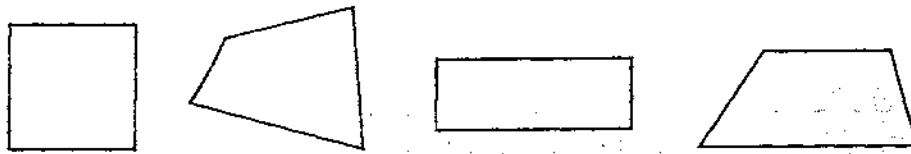
Here are several geometric figures you should know:

**1. Triangle** A figure with three sides. All these figures are triangles.



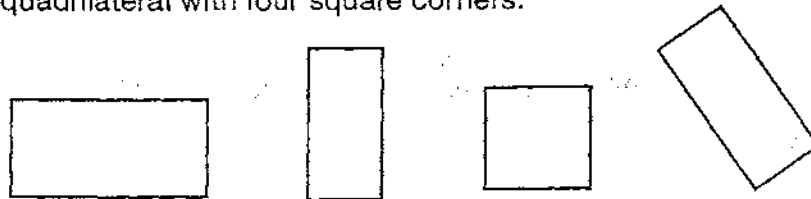
---

**2. Quadrilateral** A figure with four sides. All these figures are quadrilaterals.



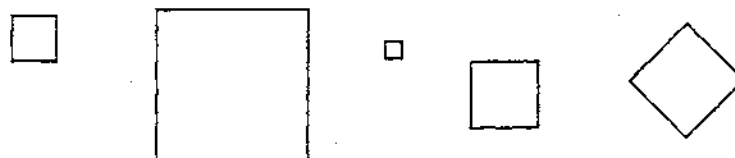
---

**3. Rectangle** A quadrilateral with four square corners.



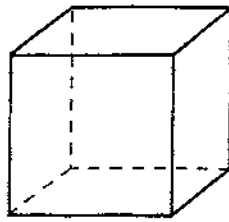
---

**4. Square** A special kind of rectangle, with all sides equal.





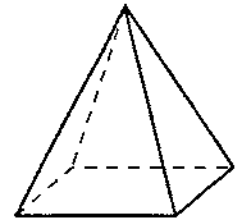
5. parallelogram



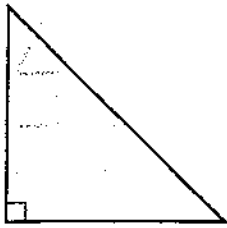
6. cube



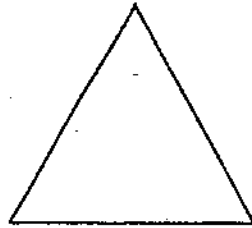
7. cylinder



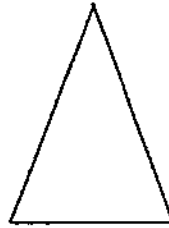
8. pyramid



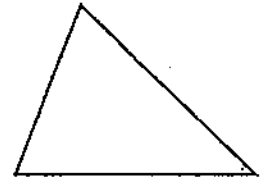
9. right triangle  
(has 90° angle)



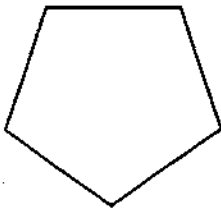
10. equilateral triangle  
(all three sides  
equal in length)



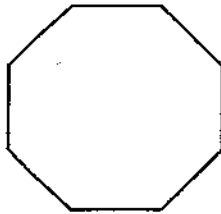
11. isosceles triangle  
(two sides equal  
in length)



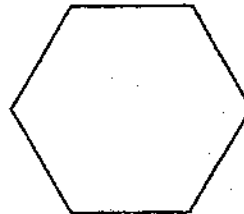
12. scalene triangle  
(each side of tri-  
angle has  
different length)



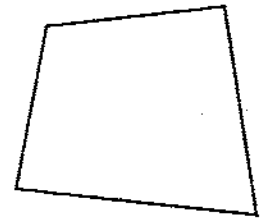
13. pentagon



14. octagon



15. hexagon



16. quadrilateral

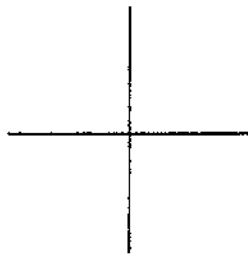
Here are examples of lines that you should know.



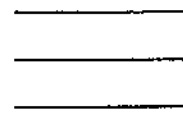
1. horizontal line  
(a line that runs  
across the page)



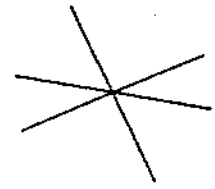
2. vertical  
line  
(a line that  
runs straight  
up and down)



3. perpendicular  
lines  
(two lines that  
form right angles  
to each other)



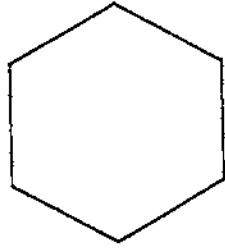
4. parallel lines  
(two or more  
lines that run in  
the same direc-  
tion and do not  
meet)



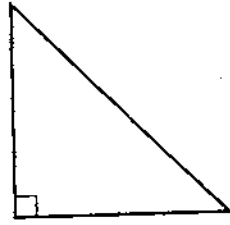
5. intersecting  
lines  
(lines that meet  
at a point)

**Directions**

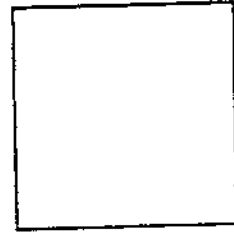
Study each geometric shape or figure and write down its name.



1. \_\_\_\_\_



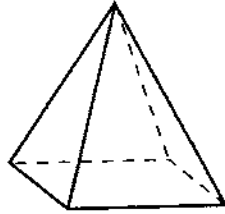
2. \_\_\_\_\_



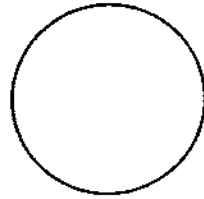
3. \_\_\_\_\_



4. \_\_\_\_\_



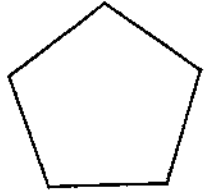
5. \_\_\_\_\_



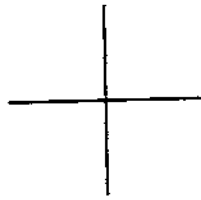
6. \_\_\_\_\_



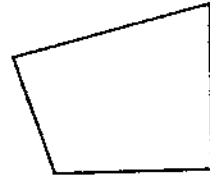
7. \_\_\_\_\_



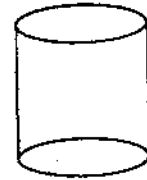
8. \_\_\_\_\_



9. \_\_\_\_\_



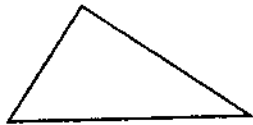
10. \_\_\_\_\_



11. \_\_\_\_\_



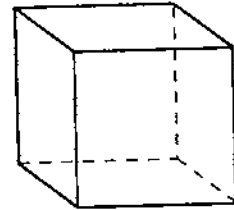
12. \_\_\_\_\_



13. \_\_\_\_\_



14. \_\_\_\_\_



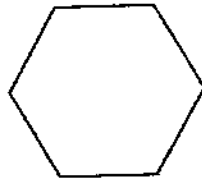
15. \_\_\_\_\_



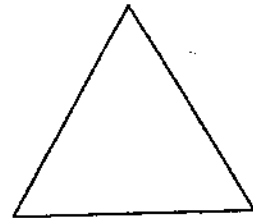
16. \_\_\_\_\_



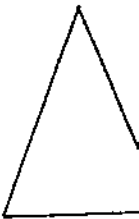
17. \_\_\_\_\_



18. \_\_\_\_\_



19. \_\_\_\_\_

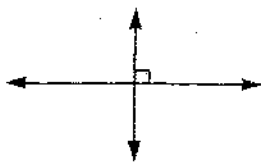


20. \_\_\_\_\_

**DIRECTIONS**

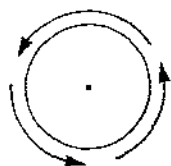
Read each question. Circle the correct answer.

1 The figure below is a picture of:



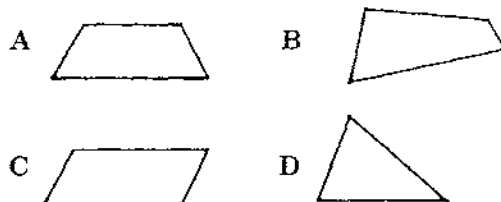
- A perpendicular lines
- B parallel lines
- C parallelogram
- D a radius

2 The figure below is a picture of:

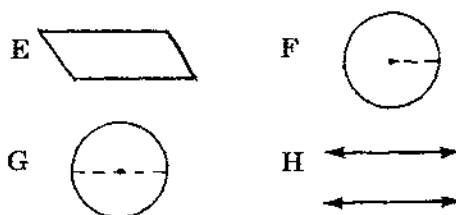


- E a diameter
- F a circumference
- G intersecting lines
- H an octagon

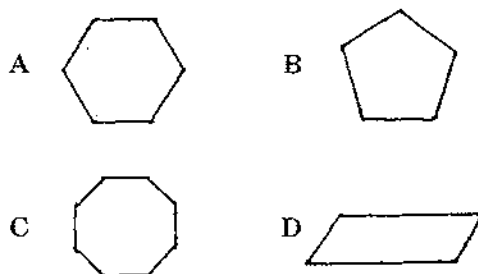
3 Which figure shows a parallelogram?



4 Which figure shows a radius?



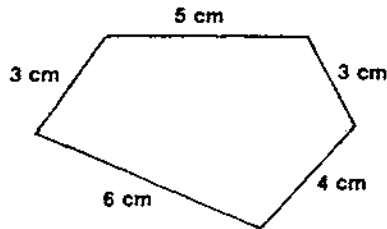
5 Which figure shows a hexagon?



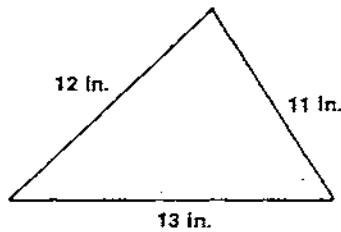
6. Draw a trapezoid in the space below.

You are expected to know how to find the perimeter of a figure and how to find the area of a rectangle and a triangle. **as you enter seventh grade.**

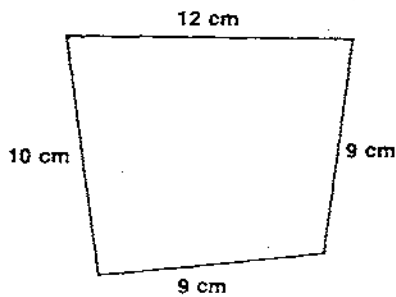
1. Find the perimeter of the figure below: \_\_\_\_\_



2. Find the perimeter of the figure below: \_\_\_\_\_

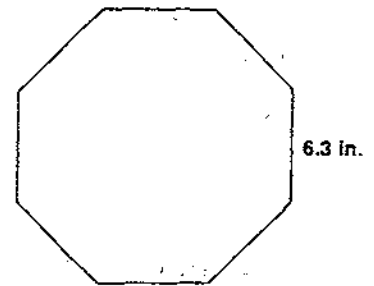


3. Find the perimeter of the figure below: \_\_\_\_\_

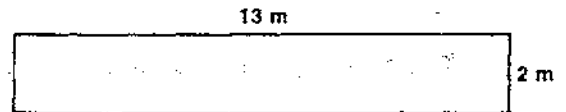


4. Find the perimeter of a rectangle whose length is 11 cm and width is 6 cm. \_\_\_\_\_

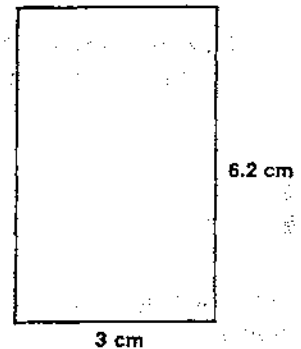
5. Find the perimeter of the regular polygon below: \_\_\_\_\_



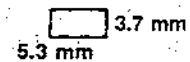
6. Find the area of the rectangle below: \_\_\_\_\_



7. Find the area of the rectangle below: \_\_\_\_\_



8. Find the area of the rectangle below: \_\_\_\_\_



9. Find the area of a rectangle whose length of 9 cm and width is 5 cm. \_\_\_\_\_

**CONCEPT:  
PROBABILITY**

**STRATEGIES AND TIPS**

1. Remember that every probability is expressed as a fraction. You only need two numbers.
2. Remember—there are only 2 kinds of math you will probably have to do:
  - a. Simplify a fraction.
  - b. Occasionally—add some numbers to get a total.
3. Don't be fooled by other numbers that you don't need in order to do the problem.
4. Don't be fooled by the following types of wrong answer choices:
  - a. *Using the wrong figures.*
  - b. *Incorrectly simplifying a fraction.*

**Probability** refers to predicting the chance that a particular event will happen. Probability can be expressed as a ratio. The numerator shows the number of favorable outcomes. The denominator shows the total number of possible outcomes.

$$\text{Probability} = \frac{\text{Number of Favorable Outcomes}}{\text{Total Number of Outcomes}}$$

- |   |   |
|---|---|
| <p>1 In a class of 30 students, 8 are freshmen, 9 are sophomores, 6 of them are juniors, and 7 are seniors. What is the probability that any one student is a junior?</p> <p>A <math>\frac{1}{5}</math></p> <p>B <math>\frac{1}{30}</math></p> <p>C <math>\frac{1}{6}</math></p> <p>D <math>\frac{1}{8}</math></p> <p>2 13 out of 52 people who live on Elm Street own a cat. What is the probability that any one person owns a cat?</p> <p>E <math>\frac{1}{52}</math></p> <p>F <math>\frac{1}{4}</math></p> <p>G <math>\frac{1}{13}</math></p> <p>H <math>\frac{1}{8}</math></p> | <p>3 A jar has 56 marbles in it. If 8 of the marbles are yellow, what is the probability of drawing a yellow marble out of the jar?</p> <p>A <math>\frac{1}{8}</math></p> <p>B <math>\frac{1}{6}</math></p> <p>C <math>\frac{1}{56}</math></p> <p>D <math>\frac{1}{7}</math></p> <p>4 18 out of 30 students have brown hair. What is the probability that any one student has brown hair?</p> <p>E <math>\frac{1}{30}</math></p> <p>F <math>\frac{12}{30}</math></p> <p>G <math>\frac{3}{5}</math></p> <p>H <math>\frac{1}{18}</math></p> |
|---|---|

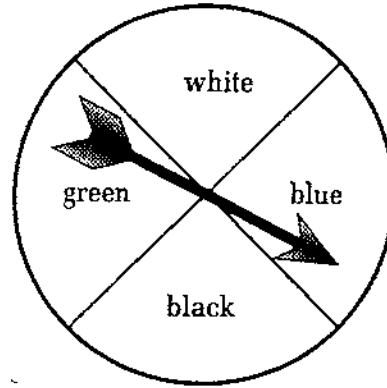
5. The spinner below has equal areas labeled white, blue, black, and green. What is the probability that the spinner will stop in an area next to where the spinner is now?

(a) 1

(c)  $\frac{1}{3}$

(b)  $\frac{1}{2}$

(d)  $\frac{1}{4}$



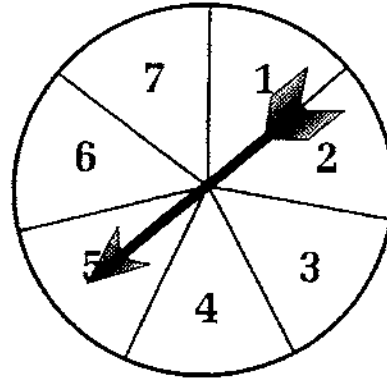
6. The spinner below has seven equal areas. What is the probability that the spinner will stop in an odd-numbered area?

(a)  $\frac{1}{7}$

(c)  $\frac{3}{7}$

(b)  $\frac{3}{4}$

(d)  $\frac{4}{7}$



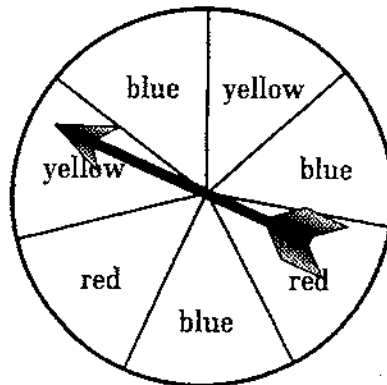
7. The spinner below is separated into equal areas. Each area is labeled by a color. What is the probability that the spinner will stop in an area labeled BLUE on the next spin?

(a)  $\frac{3}{4}$

(c)  $\frac{4}{3}$

(b)  $\frac{3}{7}$

(d)  $\frac{3}{1}$



**CONCEPT:  
ALGEBRAIC FORMULAS**

**STRATEGIES AND TIPS**

1. The best tip for this objective is to follow the method outlined in this chapter:
  - a. Copy the formula.
  - b. Substitute the values below your copy.
  - c. Solve.
2. Remember the three rules for the order in which you must solve a formula:
  - a. Do operations inside parentheses first.
  - b. Do multiplication and division before addition and subtraction.
  - c. Do operations in order (left to right) if only addition and subtraction are involved, or if only multiplication and division are involved.

- 1 A mail-order store manager prices his merchandise using the formula below. What would be the price of a pair of shoes if his cost was \$8.50 and shipping was \$.57 per pair?

$$P = (c \times 2.5) + (s \times 3)$$

where  $P$  = price

$c$  = cost of shoes

$s$  = shipping cost

- A \$14.46  
B \$22.96  
C \$21.25  
D \$24.82

- 3 Find the total receipts that the Bijou Theater took in on a Saturday afternoon if they sold 35 adult tickets and 23 children's tickets.

$$R = (a \times 5.00) + (c \times 2.50)$$

where  $R$  = total receipts, in dollars

$a$  = number of adult tickets sold

$c$  = number of children's tickets sold

- A \$175.00  
B \$202.50  
C \$57.50  
D \$232.50

- 2 The depth of a stream depends on how much rain falls in the area. Use the formula below to find the depth of a stream after a rainfall of .75 inches. The normal depth of the stream is 32 inches.

$$D = (r \times 3.5) + (n)$$

where  $D$  = depth after a rain, in inches

$r$  = amount of rain, in inches

$n$  = normal depth of stream, in inches

- E 2.625 inches  
F 32.625 inches  
G 34.625 inches  
H 32.75 inches

- 4 How much will it cost Donna to get the clutch on her pickup truck fixed if a new clutch costs the repair shop \$30, the shop charges \$35 per hour to work on a car, and it took 3 hours to put in the new clutch?

$$t = (c \times 1.6) + (r \times h)$$

where  $T$  = total cost to the customer

$c$  = cost to the shop of a replaced part

$r$  = rate per hour for work done

$h$  = hours worked

- E \$86  
F \$105  
G \$146  
H \$153

**CONCEPT:  
MATH APPLICATIONS**

**STRATEGIES AND TIPS for Math Applications**

1. Read the problem and identify what you are asked to find or figure out.
2. Eliminate any unnecessary information.
3. Decide on the first step in solving the problem.
4. Decide what computation to use or strategy to follow.
5. Do the computations or develop your plan.
6. Explain in complete sentences how you figured it out or what strategy you used.

1. Wanda's mother gave her \$250 to spend on new clothing for school. From the clothing price list below, determine how Wanda can spend the entire \$250 on clothing. She must buy at least 2 sweaters and at least 1 of each of the other items. List the clothing Wanda could buy and show how the total cost is \$250.

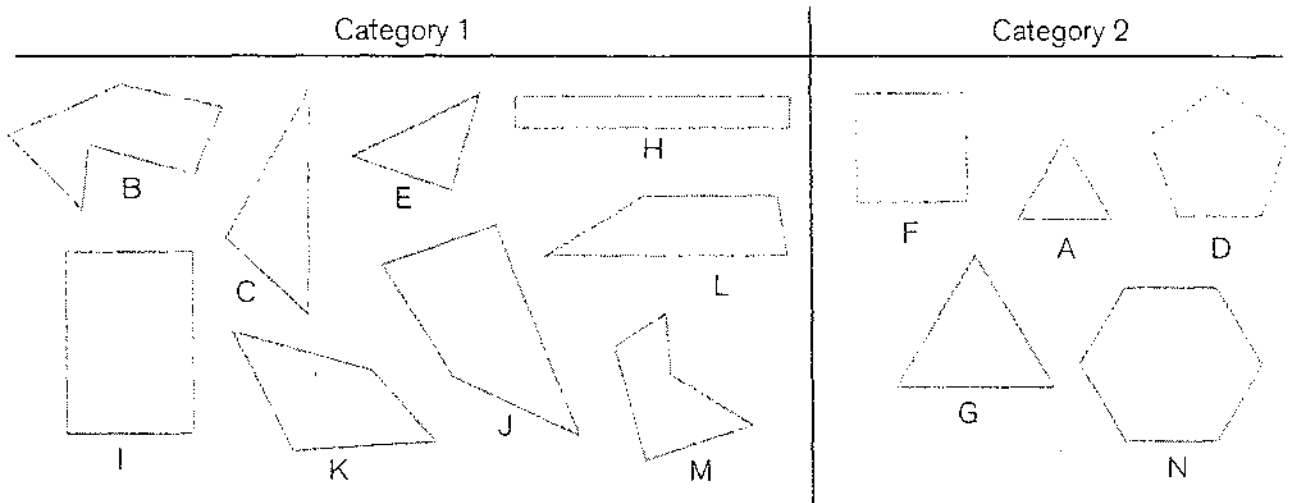
**School Shopping**

Clothing Item	Cost for One Item
Sweater	\$30
Pair of Jeans	\$25
Blouse	\$20
Skirt	\$30
Dress	\$35

# Geodee's Sorting Scheme

Name \_\_\_\_\_

Geodee sorted a set of shapes into two categories. She placed them as shown below.



1. Explain the method you think Geodee used to place the shapes in each category.

---



---



---



---

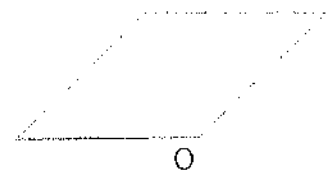
2. How would you define her categories?

---



---

3. After she finished placing the shapes, Geodee realized she had forgotten one. In which category should Geodee place shape O?



Explain why you think so.

---



---



---

# Exploring Similar Figures

Name \_\_\_\_\_

Kristin had to enlarge figure  $EFGHIJK$ . She worked very hard. Just as she completed the enlargement, she spilled her fruit punch on her homework paper. Help Kristin complete the enlargement. Describe your method.

---

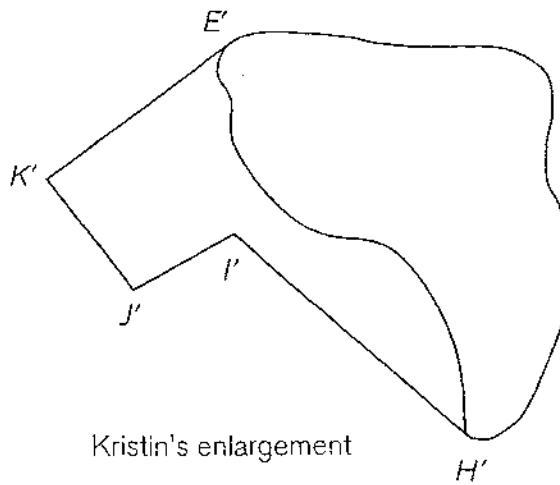
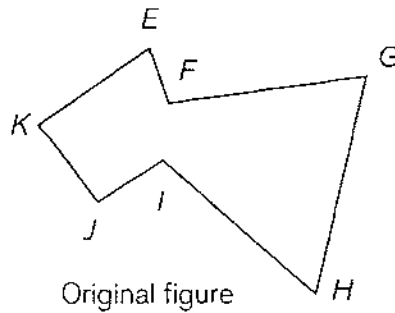
---

---

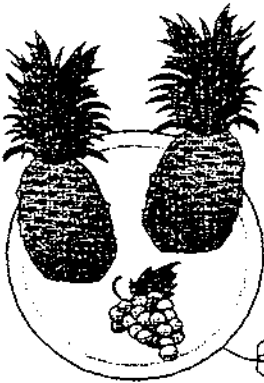
---

---

---

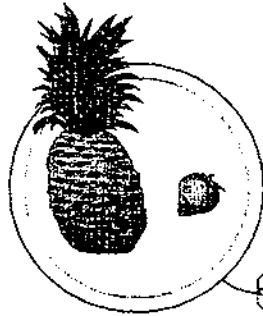


# Fruit Cocktail (A)



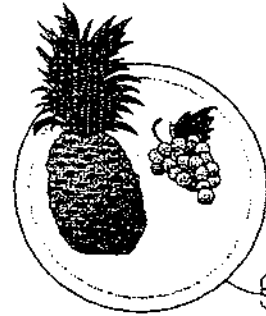
\$1.10

Grapes  
Pineapples



70¢

Strawberry  
Pineapple



80¢

Grapes  
Pineapple

Find the price of each fruit.  
Same fruits have same prices.  
Different fruits have different prices.

- 1 How much is one bunch of grapes? \_\_\_\_\_
- 2 How much is a pineapple? \_\_\_\_\_
- 3 How much is the strawberry? \_\_\_\_\_
- 4 Explain how you found the prices.

Name .....