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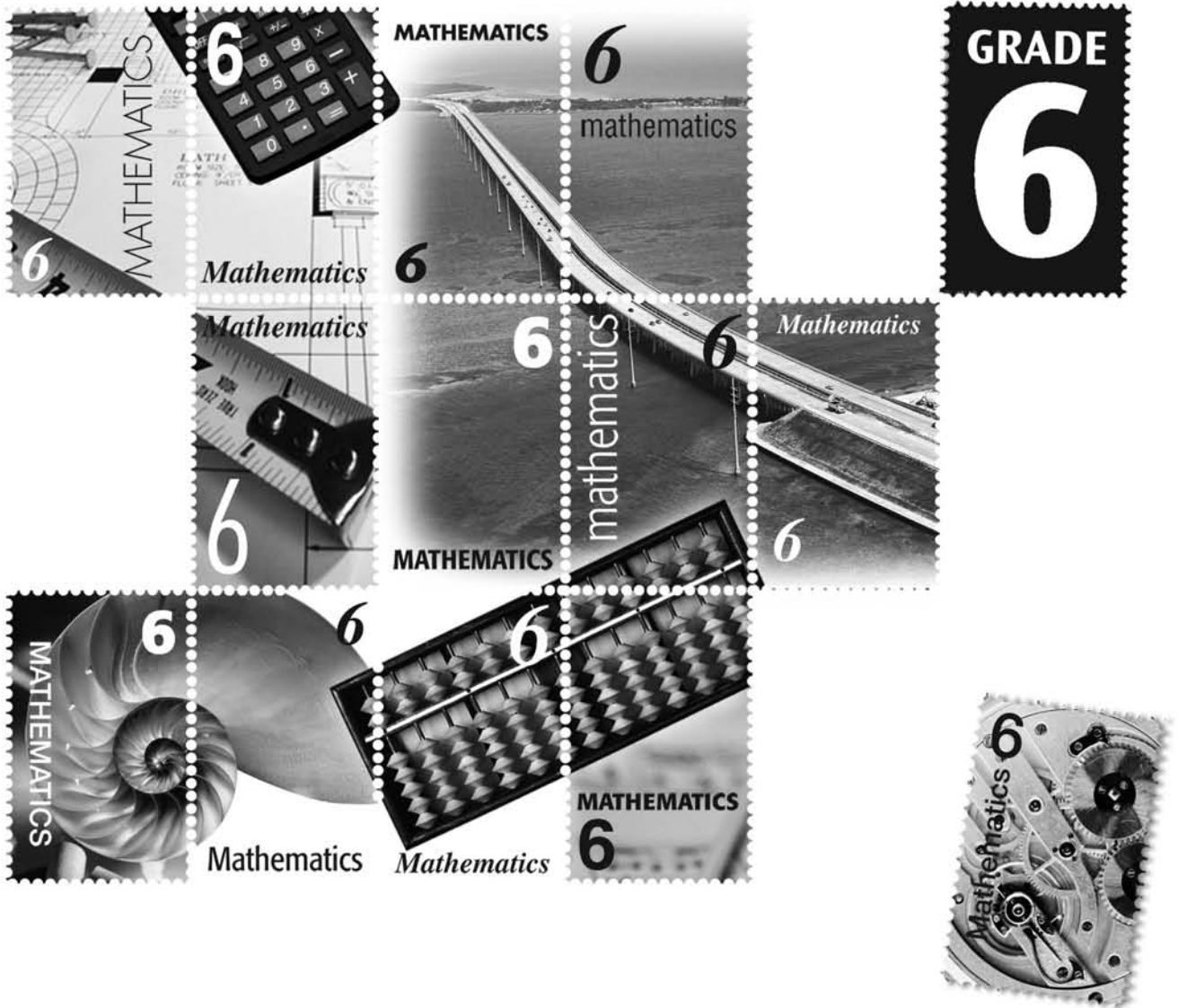
FCAT

Florida Comprehensive Assessment Test

Student Name _____

MATHEMATICS

SAMPLE TEST BOOK



FCAT Sample Test Materials

These sample test materials are designed to help you prepare to answer FCAT questions. These materials introduce you to the kinds of questions you will answer when you take FCAT and include hints for responding to the different kinds of FCAT questions. The FCAT Mathematics sample test materials for Grade 6 are composed of the books described below:

- ☒ **Sample Test and Answer Book**
Includes a mathematics sample test, a sample answer sheet, and instructions for completing the sample test. (Copies are available for all students in the tested grade.)
 - ☐ **Sample Answer Key**
Includes answers and explanations for the questions in the sample test. (Copies are available for classroom teachers only.)
- ☒ = This book

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FCAT Mathematics Sample Test Book



Gridded-Response Instructions Page 2

Some FCAT Mathematics questions require you to provide your answers by filling in numeric grids. This section shows different ways of completing the response grids correctly.

Taking the FCAT Mathematics Sample Test Page 6

This section introduces the FCAT Mathematics Sample Test. It includes hints for answering FCAT Mathematics questions and an estimate of the time required to complete the sample test.

FCAT Mathematics Sample Test Page 7

The Mathematics Sample Test consists of 18 practice questions that are similar to questions on the FCAT. It includes a perforated (tear-out) Mathematics Reference Sheet found on page 9.

FCAT Mathematics Sample Answer Sheet Page 25

Your answers to the sample test questions should be placed on the Sample Answer Sheet. The answer sheet is perforated and may be removed before you start the sample test.

How to Complete the Response Grids

Mathematics test questions with this symbol  require that you fill in a grid on your answer sheet. There may be more than one correct way to fill in a response grid. This section shows you different ways the response grid may be completed.

Parts of a Response Grid

For Grade 6, response grids have the following parts:

	/	/	/		
.	.	.	.	.	.
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

} answer boxes
fraction bar
decimal point
number bubbles

Directions

1. Work the problem and find an answer.
2. Write your answer in the answer boxes at the top of the grid.
 - Print your answer with the first digit in the left answer box, OR with the last digit in the right answer box.
 - Print only one digit or symbol in each answer box. Do NOT leave a blank answer box in the middle of an answer.
 - Be sure to write a decimal point or fraction bar in the answer box if it is a part of the answer.

3. Fill in a bubble under each box in which you wrote your answer.

- Fill in one and **ONLY** one bubble for each answer box. Do **NOT** fill in a bubble under an unused answer box.
- Fill in each bubble by making a solid black mark that completely fills the circle.
- You **MUST** fill in the bubbles accurately to receive credit for your answer.

Examples

Whole Number

$$60 + 10 =$$

OR

Decimal

Show the decimal equivalent of $5\frac{6}{100}$.

Figure 1 illustrates the 'OR' operation using two 10x5 grids. The left grid shows the input numbers 5, 0, 6, 0, 6, which are converted into binary representations (00101, 00000, 00110, 00101, 00110). The resulting grid of circles shows the output of the OR operation, where each circle is filled if at least one of the corresponding bits in the input numbers is 1. The right grid shows the same input numbers, but the resulting grid of circles is different, indicating a different OR operation result.

NOTE: You may NOT write a mixed number such as $13\frac{1}{4}$ in the answer grid. If your answer is a mixed number, you must convert the answer to an improper fraction, such as $\frac{53}{4}$, or to a decimal number, such as 13.25. If you tried to fill in $13\frac{1}{4}$, it would be read as $\frac{131}{4}$ and would be counted wrong.

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

When a percent is required to answer a question, do NOT convert the percent to its decimal or fractional equivalent. Grid in the percent value without the % symbol.

30%

Decimal or Fraction

Many answers may be shown as either a decimal or a fraction.

.	6	2	5	
	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	•	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	•	5
6	•	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

OR

	.	6	2	5
	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	•	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	•
6	6	•	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

OR

5	5	/	8	8
	/	•	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	•	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	•	•
9	9	9	9	9

OR

		5	/	8
	/	/	•	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	•	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	•
9	9	9	9	9

Ranges

A correct answer within a range of values may be represented in various ways. For example, for the inequality

$$18.8 < n < 19.2$$

values of n could be written as shown below.

1	8	.	9	
	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	•	8	8	8
9	9	9	•	9

OR

1	9			
	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	•	9	9	9

OR

			1	9
	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	•	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	•

OR

	1	9	.	1
	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	•	1	1	•
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	•	9	9

There are also other correct answers.

Taking the FCAT Mathematics Sample Test

Hints for Taking the FCAT Mathematics Test

Here are some hints to help you do your best when you take the FCAT Mathematics test. Keep these hints in mind when you answer the sample questions.

- ✓ **Read each question carefully and think about ways to solve the problem before you try to answer the question.**
- ✓ **Answer the questions you are sure about first. If a question seems too difficult, skip it and go back to it later.**
- ✓ **Be sure to fill in the answer bubbles correctly. Do not make any stray marks around answer spaces.**
- ✓ **Think positively. Some problems may seem hard to you, but you may be able to figure out what to do if you read each question carefully.**
- ✓ **When you have finished each problem, reread it to make sure your answer is reasonable.**
- ✓ **Relax. Some people get nervous about tests. It's natural. Just do your best.**

Directions for Taking the Mathematics Sample Test

This Sample Test contains the Reference Sheet and 18 questions. It should take about 20 to 25 minutes to answer all the questions. You will mark your answers on the Sample Answer Sheet on page 25 of this book. If you don't know how to work a problem, just ask your teacher to explain it to you. Your teacher has the answers to the sample test questions.

You may need formulas and conversions to help you solve some of the problems. You may refer to the Reference Sheet on page 9 as often as you like.

Use the space in your Mathematics Sample Test Book to do your work, but be sure to mark your answers on the Sample Answer Sheet.

Calculators and rulers are NOT to be used on the Mathematics Sample Test.

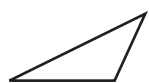
FCAT *Mathematics* *Sample* Test



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Grades 6–8 FCAT Mathematics Reference Sheet

Area



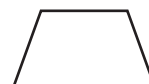
Triangle

$$A = \frac{1}{2}bh$$



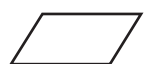
Rectangle

$$A = lw$$



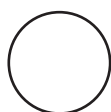
Trapezoid

$$A = \frac{1}{2}h(b_1 + b_2)$$



Parallelogram

$$A = bh$$



Circle

$$A = \pi r^2$$

In a polygon, the sum of the measures of the interior angles is equal to $180(n - 2)$, where n represents the number of sides.

KEY

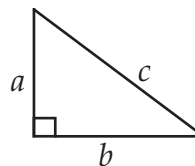
b = base	d = diameter
h = height	r = radius
l = length	A = area
w = width	C = circumference
$S.A.$ = surface area	V = volume

Use 3.14 or $\frac{22}{7}$ for π .

Circumference

$$C = \pi d \quad \text{or} \quad C = 2\pi r$$

Pythagorean Theorem



$$a^2 + b^2 = c^2$$

Volume/Capacity



Right Circular Cylinder

$$V = \pi r^2 h$$



Rectangular Prism

$$V = lwh$$

Total Surface Area

$$S.A. = 2\pi rh + 2\pi r^2$$

$$S.A. = 2(lw) + 2(hw) + 2(lh)$$

Conversions

1 yard = 3 feet = 36 inches
1 mile = 1760 yards = 5280 feet
1 acre = 43,560 square feet
1 hour = 60 minutes
1 minute = 60 seconds

1 liter = 1000 milliliters = 1000 cubic centimeters
1 meter = 100 centimeters = 1000 millimeters
1 kilometer = 1000 meters
1 gram = 1000 milligrams
1 kilogram = 1000 grams

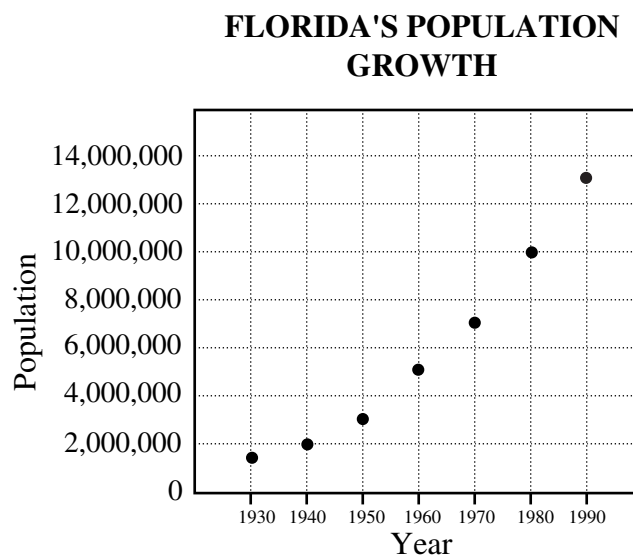
1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts

1 pound = 16 ounces
1 ton = 2000 pounds

Metric numbers with four digits are presented without a comma (e.g., 9960 kilometers). For metric numbers greater than four digits, a space is used instead of a comma (e.g., 12 500 liters).

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- 1 The scatter plot shows the increasing growth of the population in Florida.

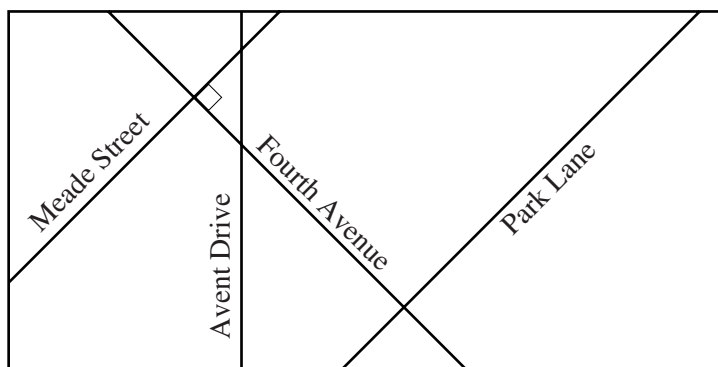


Over which 20-year period was the population increase greatest?

- A. 1940 to 1960
 - B. 1950 to 1970
 - C. 1960 to 1980
 - D. 1970 to 1990
- 2 Which expression is equivalent to $4 + 3^2 \times 6$?

- F. $4 + 36$
- G. $4 + 54$
- H. 13×6
- I. 49×6

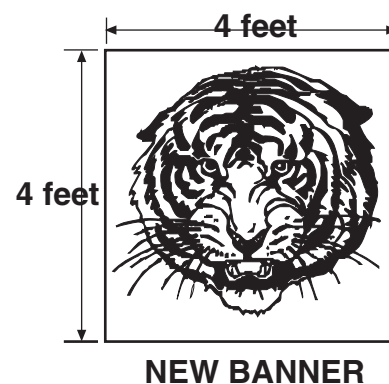
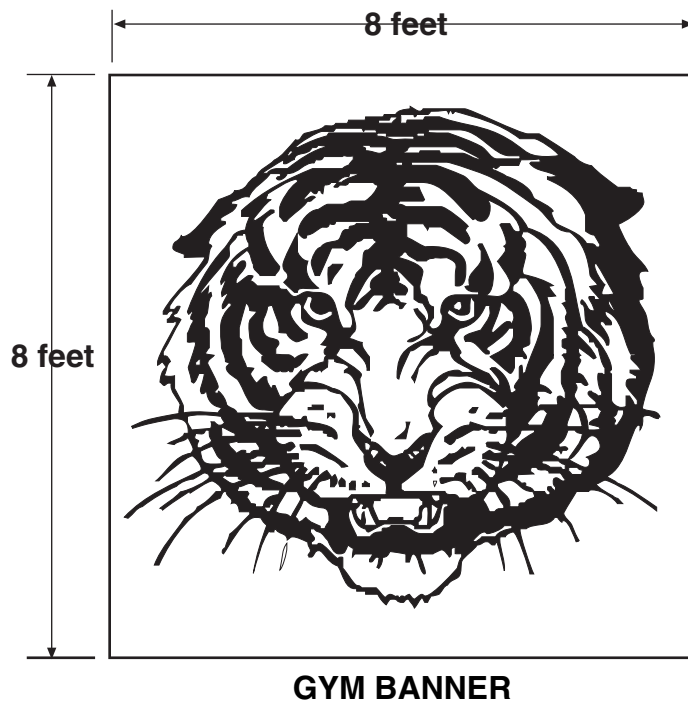
- 3 On the map, Meade Street is parallel to Park Lane. Fourth Avenue is perpendicular to Meade Street.



Which statement below must also be true?

- A. Fourth Avenue is perpendicular to Avent Drive.
 - B. Fourth Avenue is perpendicular to Park Lane.
 - C. Meade Street will intersect Park Lane.
 - D. Meade Street is parallel to Avent Drive.
- 4 Jill's garden has 6 rows with 5 bean plants in each row and 6 rows with 4 bean plants in each row. Which expression represents the number of bean plants in her garden?
- F. $6(5 + 4)$
 - G. $65 + 64$
 - H. $5(4 + 6)$
 - I. $4(5) + 4(6)$

- 5 The students at Bruckner Middle School made a smaller copy of the 8-foot by 8-foot tiger mascot banner that hangs in the gym. The new banner will hang in the school hallway. Its sides are $\frac{1}{2}$ the length of the sides of the gym banner.



How many times larger is the area of the gym banner than the area of the new banner?

- 6 Althea collects postage stamps. She has $\frac{16}{64}$ of the postage stamps that she wants for her collection. What is $\frac{16}{64}$ expressed as a percent?

- 7 During the track season, Marco improved his best distance in the long jump. At the beginning of the season, his best distance was 13 feet, $10\frac{3}{4}$ inches. At the end of the season, his best distance was 14 feet, $6\frac{1}{2}$ inches. By how many inches did Marco improve his best distance in the long jump?
- A. $19\frac{3}{4}$ inches
- B. $16\frac{1}{4}$ inches
- C. $7\frac{3}{4}$ inches
- D. $4\frac{1}{4}$ inches
- 8 The Mid-City High School basketball team is called the Panthers. The drawing below shows an illustration on the front of the Mid-City High School yearbook.

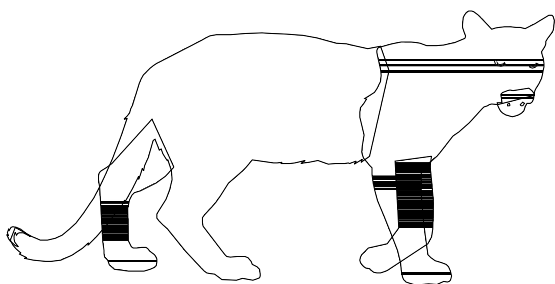


Figure 1

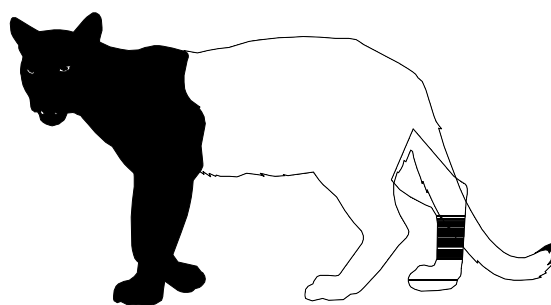


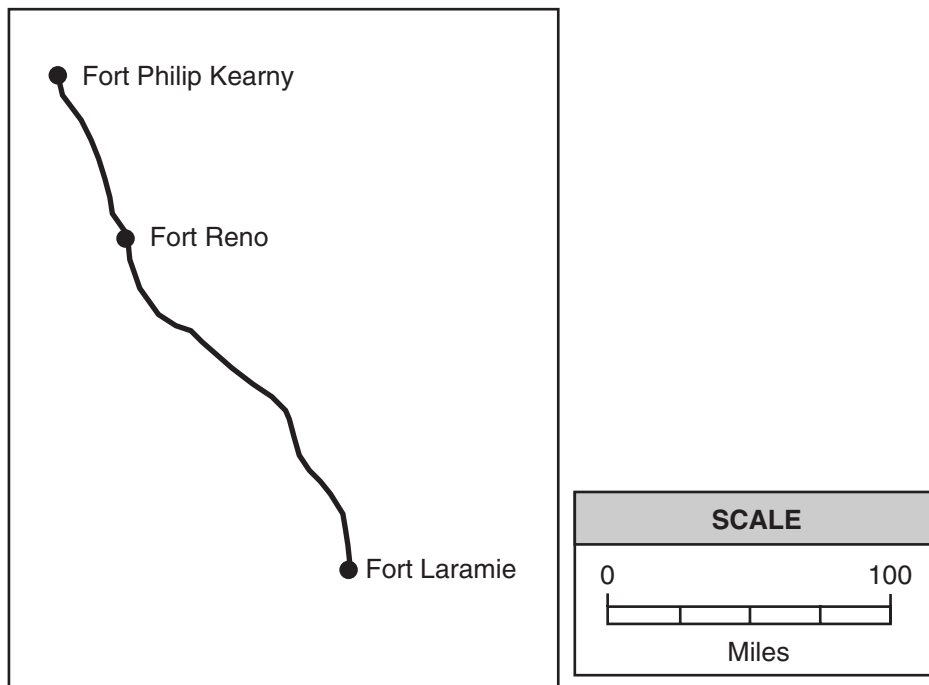
Figure 2

Based on this drawing, which of these terms **best** describes the transformation of Figure 1 to Figure 2?

- F. reflection
- G. rotation
- H. slide
- I. dilation

- 9 In June of 1866, Native American Chief Red Cloud and a tribe of Sioux traveled from Fort Philip Kearny to Fort Laramie along the Bozeman Trail.

MAP OF PART OF BOZEMAN TRAIL



Using the map scale shown, what is the approximate distance along the trail from Fort Philip Kearny to Fort Laramie?

- A. 50 miles
- B. 100 miles
- C. 150 miles
- D. 200 miles

- 10 A box of Cindy's favorite cookies has this label.

**Nutrition Facts**

Serving Size: 2 cookies

Servings per container: about 10

Amount Per Serving**Calories:** 160 **Calories from Fat:** 70**% Daily Value*****Total Fat:** 8 grams 12%

Saturated Fat: 1.5 grams 8%

Cholesterol: 0 milligrams 0%**Sodium:** 130 milligrams 5%**Total Carbohydrate:** 22 grams 7%

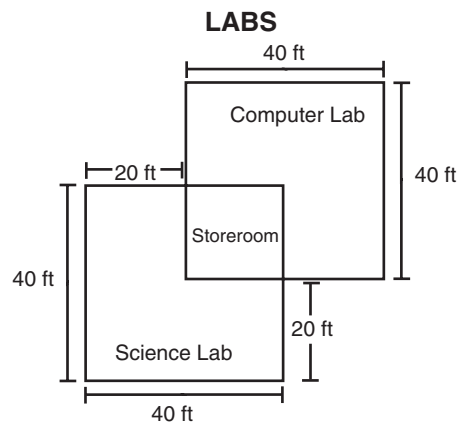
Dietary Fiber: 0 grams 0%

Sugars: 9 grams

Protein: 1 gram

She read that there are 8 grams of fat in 2 cookies. This relationship can be expressed by the equation $2c = 8$, where c represents the amount of fat in each cookie. How many grams of fat are in 5 cookies?

- 11 The computer lab and the science lab share a storeroom. The three rooms are square-shaped as shown in the diagram below.



What is the area, in square feet, of the storeroom?

- 12 Sam kept a list of the points made by the highest-scoring basketball players at school.

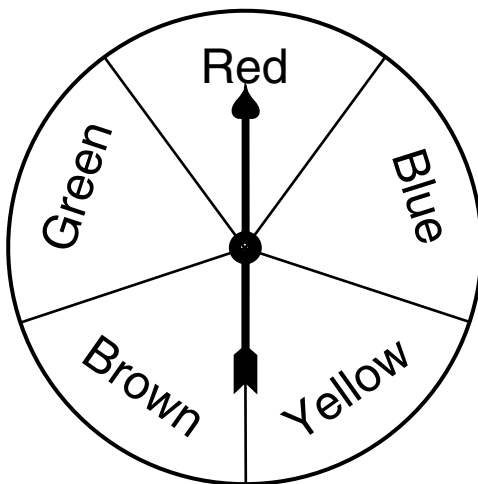
He used the scores to make a stem-and-leaf plot, as shown.

Stem	Leaf
1	4 9
2	0 5 6 8 8

What is the median of this set of points?

- F. 14
- G. 23
- H. 25
- I. 28

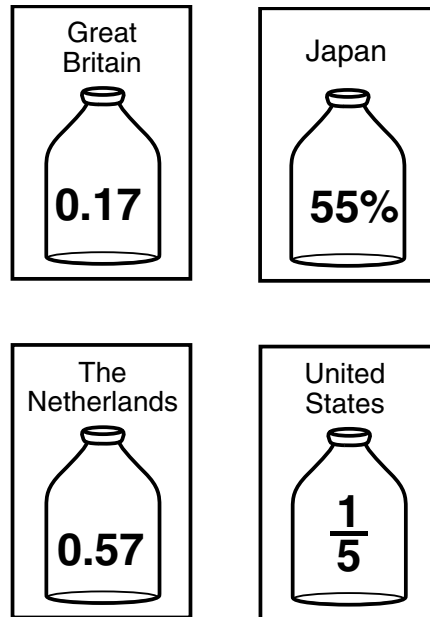
- 13 The spinner below is divided into 5 congruent sections.



What is the probability that the pointer will land on the section labeled “Brown” on the tenth spin?

- A. $\frac{1}{10}$
- B. $\frac{1}{5}$
- C. $\frac{1}{4}$
- D. $\frac{5}{10}$

- 14 Four students studied global recycling and learned that glass is an easy material to recycle. The students selected four countries and determined the portion of glass recycled in each country. They displayed their findings as shown below.



Which of the following lists the four countries in order by the portion of glass recycled from **least** to **greatest**?

- F. Great Britain, United States, Japan, The Netherlands
- G. Great Britain, United States, The Netherlands, Japan
- H. United States, Great Britain, The Netherlands, Japan
- I. United States, Great Britain, Japan, The Netherlands

- 15 Roberto is making 36 caramel apples for his sister's class.



CARAMEL NEEDED FOR CARAMEL APPLES

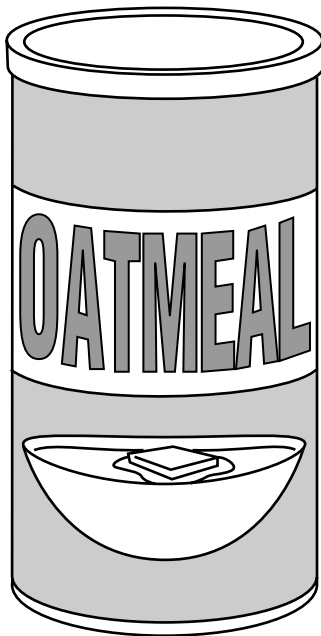
Number of Caramel Apples	Pounds of Caramel
4	1
8	2
12	3
16	4
20	5

Using the table above as a guide, how many pounds of caramel will Roberto need to make 36 caramel apples?

- 16 In 1998, Jenny Thompson from California set a new world record in swimming in the 100-meter butterfly event with a time of 56.90 seconds. The previous world record was 57.79 seconds. How many seconds faster was this 1998 world record than the previous world record?



- 17 For a craft project, Chris wanted to use wrapping paper to cover the outside of an oatmeal container, a right circular cylinder. He did not want to cover the top or the bottom of the container.

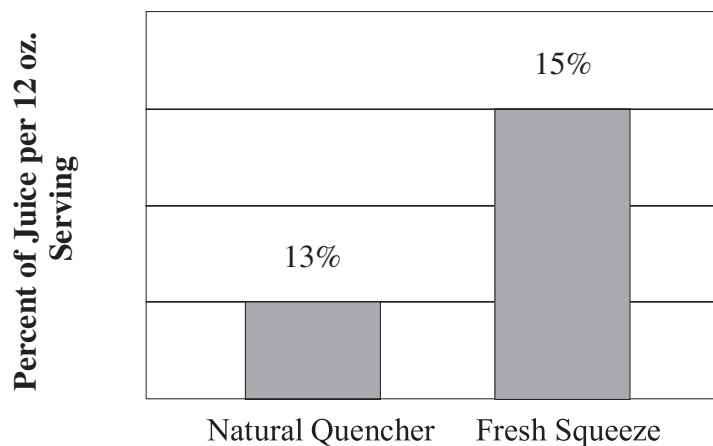


What two-dimensional figure represents the shape of the piece of paper that would exactly cover the outside of the container?

- A. circle
- B. hexagon
- C. rectangle
- D. triangle

- 18 Iris saw an ad for Fresh Squeeze juice that included the graph shown below.

JUICE PRODUCT COMPARISON



Which one of the following characteristics makes the graph misleading?

- F. The bars are in the wrong order.
- G. The data is represented on a bar graph instead of a circle graph.
- H. The amount of juice is expressed as a percent rather than in ounces.
- I. The scale increments make the percent of juice in Fresh Squeeze appear to be 3 times greater than the percent of juice in Natural Quencher.



This is the end of the Mathematics Sample Test.
Until time is called, go back and check your work or answer questions you did not complete. When you have finished, close your Sample Test Book.

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Name _____

Answer all the questions that appear in the Mathematics Sample Test on this Sample Answer Sheet.

1

(A) (B) (C) (D)

2

(F) (G) (H) (I)

3

(A) (B) (C) (D)

4

(F) (G) (H) (I)

5

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

6

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

7

(A) (B) (C) (D)

8

(F) (G) (H) (I)

9

(A) (B) (C) (D)

10

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

11

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

12

Ⓕ

©

Ⓜ

①

13

A

ⓑ

©

D

14

Ⓕ

©

Ⓜ

①

15

16

17

A

(B)

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Ⓕ

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Notes



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