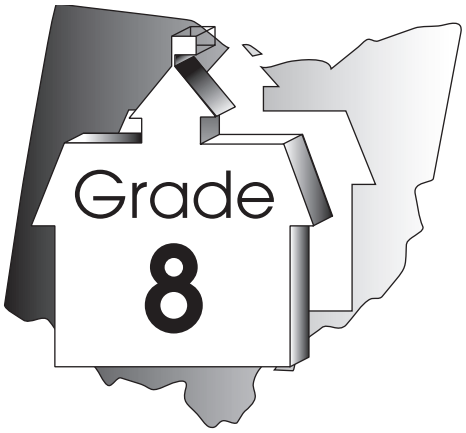
Student Name: _____

Ohio's Achievement Tests



Mathematics

Large Print
Half-Length Practice Test

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M Mathematics

Directions:

Today you will be taking the Ohio Grade 8 Mathematics Practice Test. Three different kinds of questions appear on this test: multiple choice, short answer and extended response.

There are several important things to remember:

- Read each question carefully. Think about what is being asked. Look carefully at graphs or diagrams because they will help you understand the question.

- You may use the blank areas of your test booklet to solve problems.

- For short-answer and extended-response questions, write your answers neatly and clearly in the space provided.

- Short-answer questions are worth two points. Extended-response questions are worth four points. Point values are printed near each question in your test booklet. The amount of space provided for your answers is the same for two- and four-point questions.

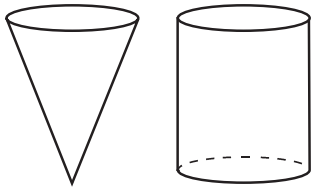
- For multiple-choice questions, circle the letter of the answer choice that is correct. Mark only one choice for each question. If you change an answer, make sure that you erase your old answer completely.

- Do not spend too much time on one question. Go on to the next question and return to the question skipped after answering the remaining questions.

- Check over your work when you are finished.

M Mathematics

1. Janna is using a cone-shaped cup to fill a cylindrical container.



The cup has the same height and radius as the container. How many times will she have to fill the cone-shaped cup to completely fill the cylindrical container?

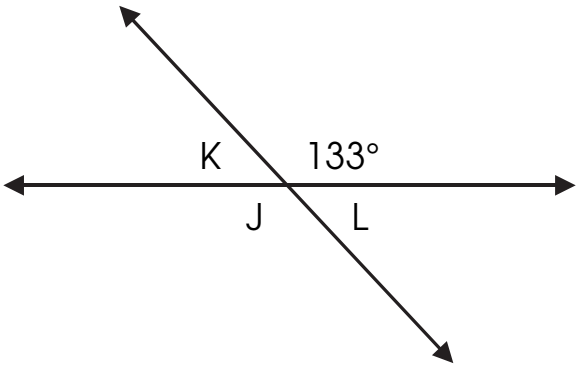
A. $\frac{1}{3}$

B. 1

C. 2

D. 3

2. What is the sum of the measures of ∠K and ∠L?



A. 47°
B. 94°
C. 133°
D. 227°

3. Zack conducted a survey in his school. He asked each student to choose his or her favorite subject. Zack wants to create a graph showing the percentage of students who chose each subject as their favorite.

   Which type of graph would best represent these data?

   A. stem-and-leaf plot
   B. circle graph
   C. line graph
   D. scatterplot

4. What is the slope of the line passing through the points (1, 3) and (5, 0)?

A. $-\frac{4}{3}$

B. $-\frac{3}{4}$

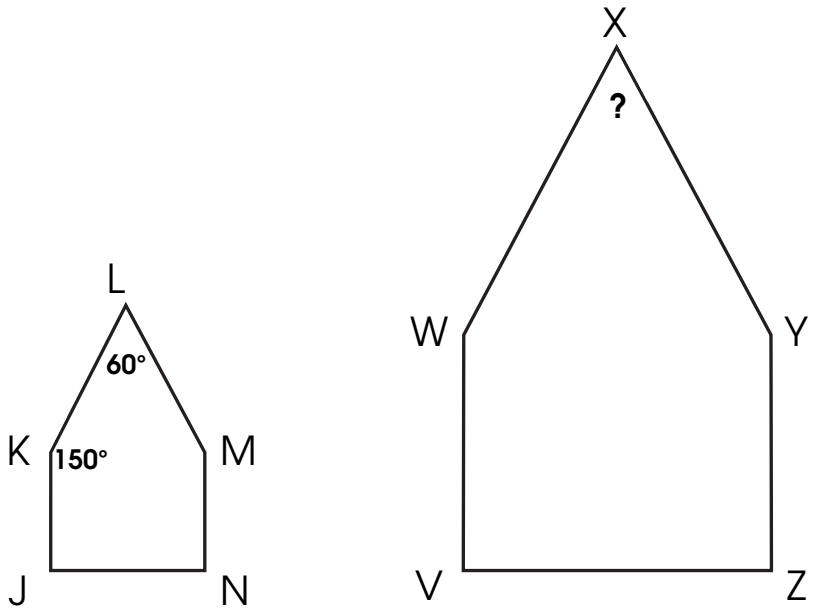
C. $\frac{3}{4}$

D. $\frac{4}{3}$

5. Rob would like to buy a $20 CD that is on sale for 15% off. He estimates that he will save at least $4.00.

   Determine whether or not Rob's estimate is reasonable. Show or explain how you decided if Rob's estimate is reasonable. (2 points)

6. Pentagon JKLMN is similar to pentagon VWXYZ.



What is the measurement of angle X?

A. 30°
B. 60°
C. 150°
D. 120°

7. Evaluate: $(2^3)(3^{-2})$

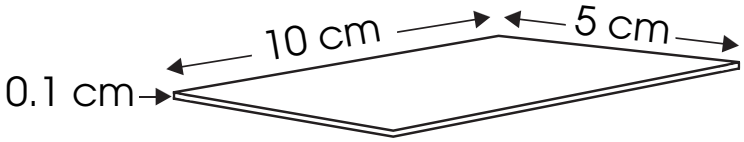
A. -36

B. $-\frac{6}{6}$

C. $\frac{8}{9}$

D. 72

8. The dimensions of a piece of aluminum are shown below.



The density formula is:

$$Density = \frac{Mass}{Volume}$$

What is the approximate density of this piece of aluminum if its mass is 13.5 grams?

A. 0.37 g/cm^3
B. 0.27 g/cm^3
C. 1.35 g/cm^3
D. 2.70 g/cm^3

Go to next page

9. The table shows the flow rate in gallons per minute as the valve on a fire hydrant is opened.

Number of revolutions of the valve handle	Flow rate (gallons/minute)
0	0
2	60
4	120
6	180

Write an equation and construct a graph that relates the number of revolutions of the valve handle to the flow rate in gallons/minute.

Describe how the slope of the graph will change when a blockage reduces the flow rate by half. (4 points)

10. A biologist is collecting data about butterflies.

    Which data represents discrete data?

    A. the age of a butterfly over its lifespan
    B. the weight of a butterfly over its lifespan
    C. the temperature over a day in the case in which the butterflies are stored
    D. the number of butterflies collected each day over a month

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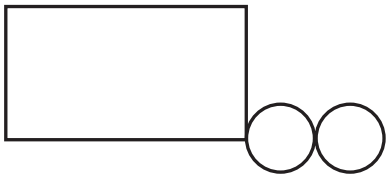
11. Which illustration represents the net of a cylinder?

A.



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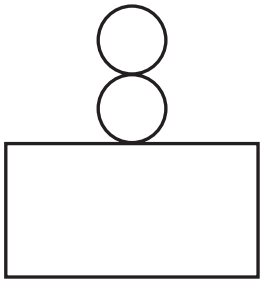

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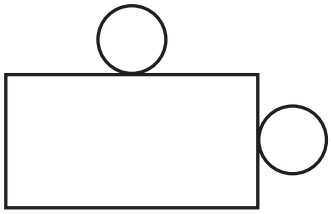

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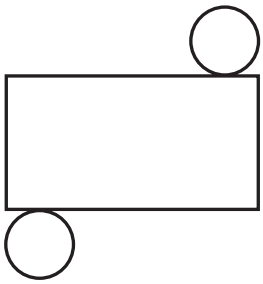


12. Jason is traveling at an average rate of 55 miles per hour. He began driving at 10:30 a.m. and will travel a total distance of 248 miles. Jason does not make any stops.

    At what time should Jason arrive at his destination?

    A. 2:00 p.m.
    B. 2:30 p.m.
    C. 3:00 p.m.
    D. 4:30 p.m.

Go to next page

13. The $\sqrt{300}$ is between which two consecutive integers?

A. 15 and 16

B. 16 and 17

C. 17 and 18

D. 18 and 19

14. The yearly salaries for each of six employees of a small business are shown in the table.

Title	Salary
Owner	$140,000
Manager	$50,000
Bookkeeper	$45,000
Clerk	$32,000
Clerk	$30,000
Stocker	$30,000

Tell whether you would choose the mean or the median to describe the salary of these six people. Use mathematics to explain why you made this choice. (2 points)

Go to next page

15. What is the value of x when $3x < -2x + 15$?

A. $x > 3$

B. $x < 3$

C. $x < 15$

D. $x > 15$

16. In 1998, the Balboa Movie Company spent $\$3.5 \times 10^4$ to make one movie. In 2000, the same company spent $\$4.51 \times 10^5$ to make one movie.

What is the difference in the cost of making these movies?

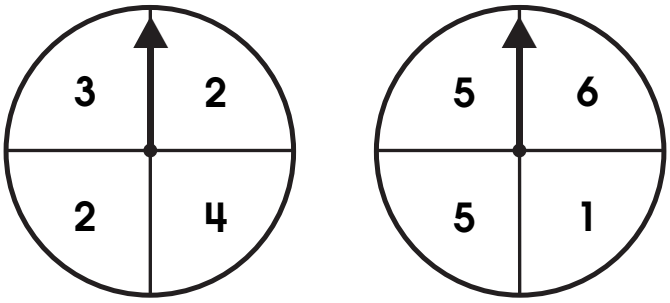
A. $\$4.16 \times 10^5$

B. $\$4.16 \times 10^4$

C. $\$1.01 \times 10^1$

D. $\$1.01 \times 10^{-1}$

17. Kyle spins each spinner once and multiplies the two numbers he lands on.



What is a reasonable prediction for what might happen?

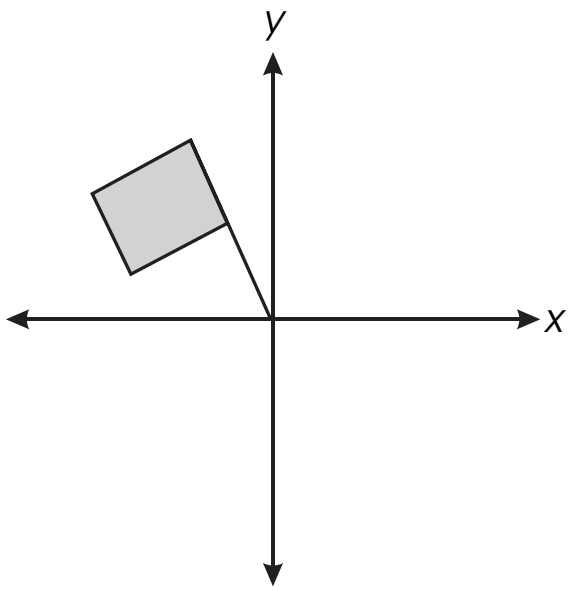
A. The most likely product is 12.

B. The most likely product is 10.

C. The product cannot be less than 4.

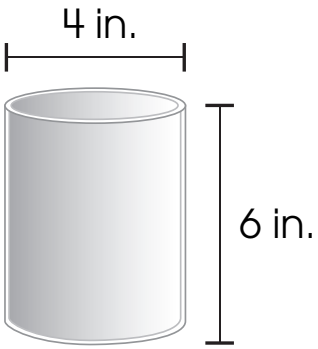
D. The product cannot be greater than 18.

18. A flag is drawn on a coordinate plane.



Sketch this flag on a coordinate plane. Then rotate the flag 180° about the origin and sketch the flag in its new position.
(2 points)

19. Sean found the cylindrical glass shown. He needs to cover the side and the bottom with green contact paper.



Approximately how many square inches of paper will Sean need if there is no overlap?

A. 75 square inches
B. 87 square inches
C. 100 square inches
D. 201 square inches

STOP

Ohio Grade 8 Mathematics Achievement Test
Reference Sheet — Large Print

Information that may be needed to solve problems on the Mathematics Test:

Area Formulas

parallelogram	$A = bh$
rectangle	$A = lw$
trapezoid	$A = \frac{1}{2} h (b_1 + b_2)$
triangle	$A = \frac{1}{2} bh$

Circle Formulas

$C = 2\pi r$

$A = \pi r^2$

$\pi \approx 3.14$ or $\frac{22}{7}$

Distance Formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Volume Formulas

cone	$V = \frac{1}{3} \pi r^2 h$
cylinder	$V = \pi r^2 h$
pyramid	$V = \frac{1}{3} Bh$ (B = area of base)
rectangular prism	$V = lwh$
right prism	$V = Bh$ (B = area of base)
sphere	$V = \frac{4}{3} \pi r^3$

M

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