

Student Name: _____

Ohio Achievement Tests



Mathematics Student Test Booklet

Large Print
May 2008

This test was originally administered to students in May 2008.

Not all items from the May 2008 administration will be released in this document. According to Ohio Revised Code (ORC) 3301.07.11:4(b) . . . not less than forty percent of the questions on the test that are used to compute a student's score shall be a public record. The department (of education) shall determine which questions will be needed for reuse on a future test and those questions shall not be public records and shall be redacted from the test prior to its release as public record.

This publicly released material is appropriate for use by Ohio teachers in instructional settings. This test is aligned with Ohio's Academic Content Standards for Mathematics.

The Ohio Department of Education does not discriminate on the basis of race, color, national origin, sex, religion, age, or disability in employment or the provision of services.

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 $V = \frac{4}{3} \pi r^3$

Directions:

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

There are several important things to remember:

1. Read each question carefully. Think about what is being asked. Look carefully at graphs or diagrams because they will help you understand the question.
2. You may use the blank areas of your Student Test Booklet to solve problems. You may also use the optional grid paper in the answer document to solve problems.
3. For short-answer and extended-response questions, use a pencil to write your answers neatly and clearly in the gridded space provided in the answer document. Any answers you write in the Student Test Booklet will not be scored.

M

Mathematics

4. Short-answer questions are worth two points. Extended-response questions are worth four points. Point values are printed near each question in your Student Test Booklet. The amount of gridded space provided for your answer is the same for all two- and four-point questions.
5. For multiple-choice questions, shade in the circle next to your choice in the answer document for the test question. Mark only one choice for each question. Darken completely the circles on the answer document. If you change an answer, make sure that you erase your old answer completely.
6. 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.
7. Check over your work when you are finished.

M

Mathematics

1. Which number is equivalent to 5^{-1} ?

A. -5

B. $-\frac{1}{5}$

C. $\frac{1}{5}$

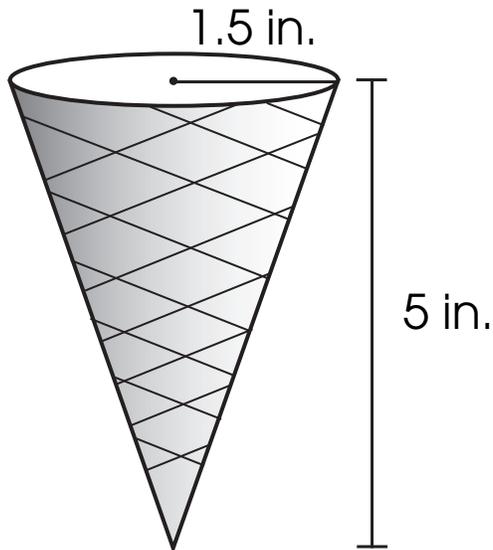
D. 5



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2. The cone shown has a height of 5 inches and a radius of 1.5 inches.



What is the approximate volume of the cone?

- A. between 11 and 12 cubic inches
- B. between 15 and 16 cubic inches
- C. between 35 and 36 cubic inches
- D. between 39 and 40 cubic inches



Items 3–4 have not been slated for public release in 2008.

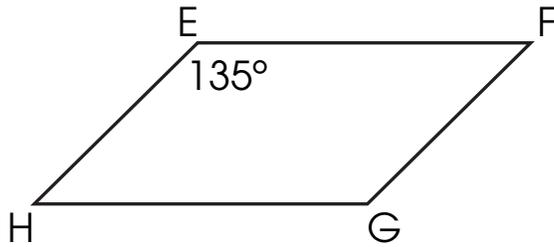


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M

Mathematics

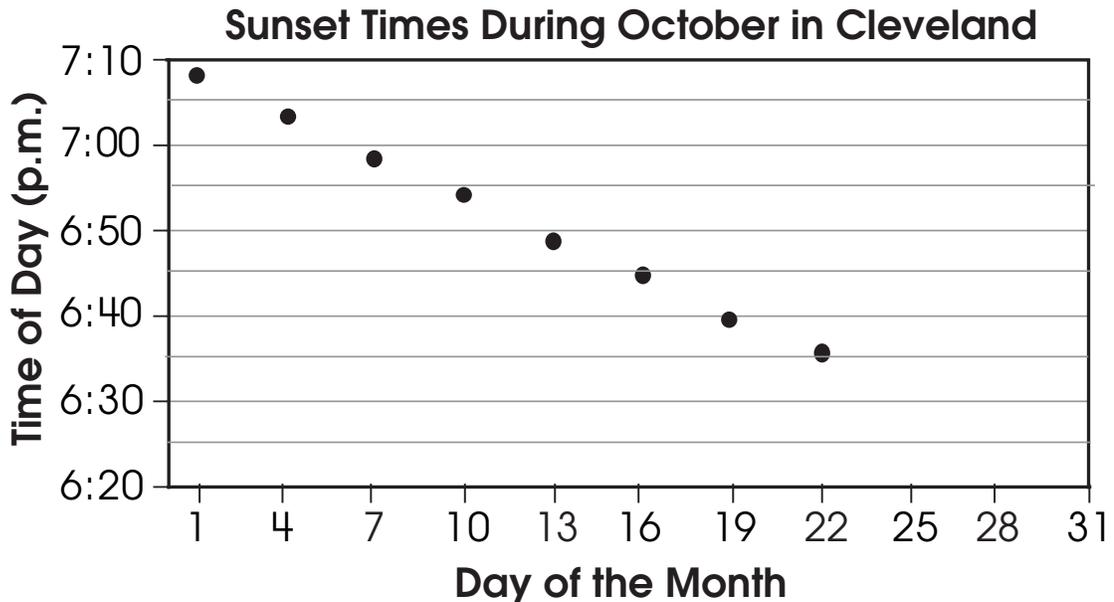
5. A parallelogram is shown.



What is the measure of angle F?

- A. 45 degrees
- B. 65 degrees
- C. 90 degrees
- D. 135 degrees

6. A student in Cleveland, Ohio, recorded the sunset times in October. She plotted her data in the scatterplot shown.



In your **Answer Document**, use the graph to predict what time the sun will set on October 28. Explain the strategy you used to make your prediction.

For question 6, respond completely in your **Answer Document**. (2 points)

M

Mathematics

7. Mr. Bailey plans to plant soybeans in 4 of every 9 acres. This year, he plans to farm 2,100 acres.

What is a reasonable estimate of the number of acres on which he will plant soybeans?

- A. 60
- B. 230
- C. 520
- D. 930

Item 8 has not been slated for public release
in 2008.



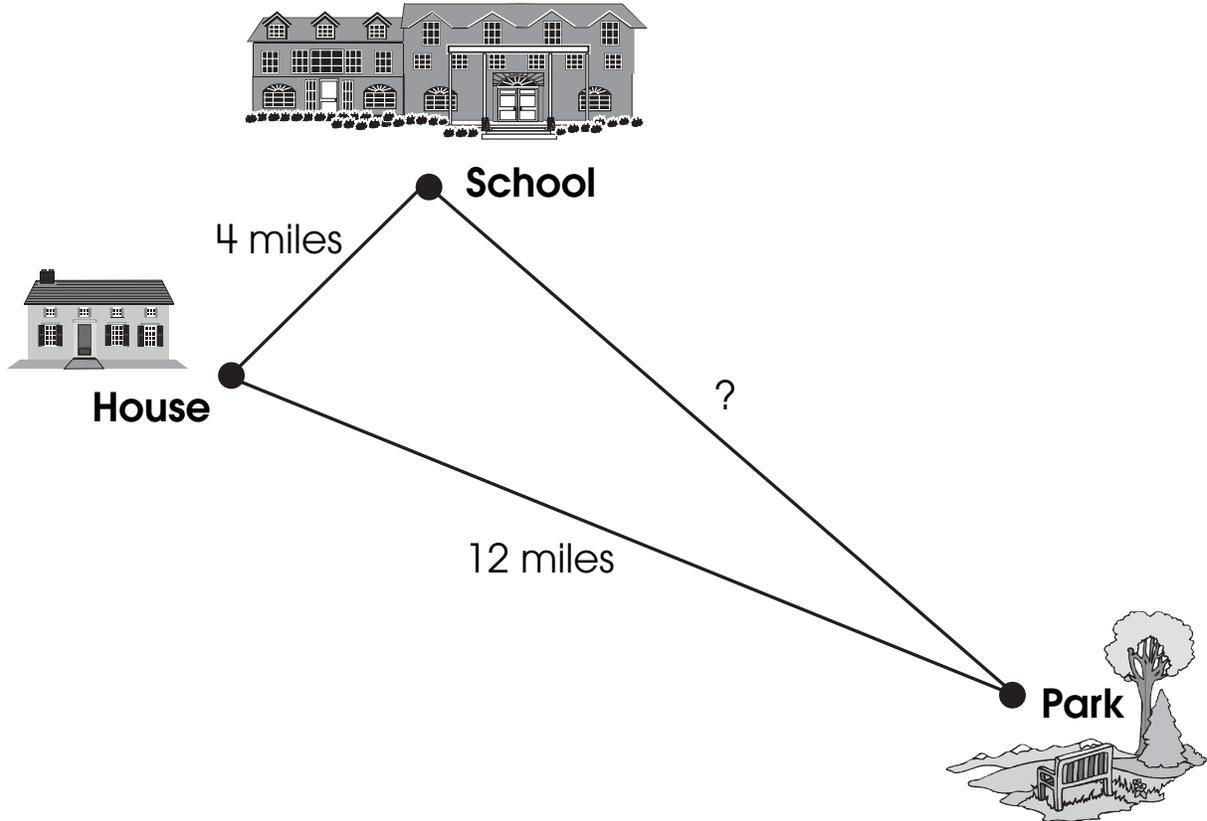
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Mathematics

9. The locations of Andy's house, school and local park form a triangle, as shown.



Which is a possible distance from the local park to Andy's school?

- A. 4 miles
- B. 8 miles
- C. 10 miles
- D. 16 miles

10. Which table of values represents a linear function?

A.

x	y
-2	-1
-1	-4
0	-5
1	4

B.

x	y
-2	4
-1	1
0	0
1	-1

C.

x	y
-2	6
-1	3
0	0
1	3

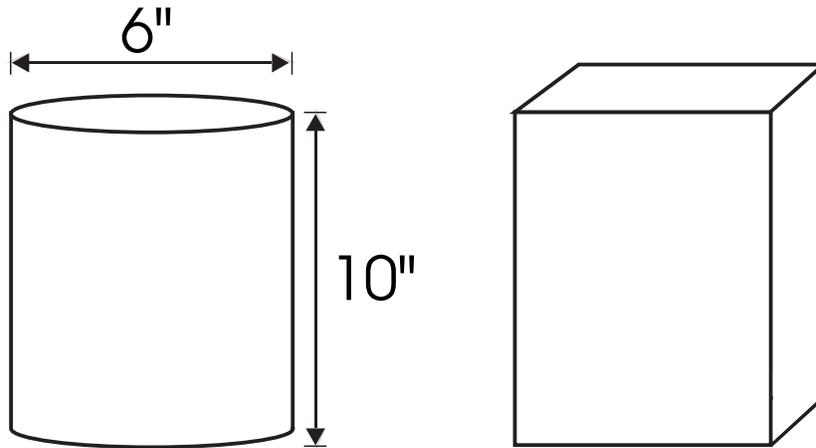
D.

x	y
-2	0
-1	2
0	4
1	6

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Mathematics

11. A cereal maker is currently packaging cereal in cylindrical boxes with a 6" diameter and a height of 10". The cereal maker is considering changing to rectangular boxes.



The two boxes need to have the same height to fit on the grocery store shelf and they need to have the same volume.

In your **Answer Document**, determine the dimensions of the rectangular box that meets these conditions. Show your work.

For question 11, respond completely in your **Answer Document**. (2 points)

Item 12 has not been slated for public release
in 2008.

On the May 2008 Grade 8 Mathematics
Achievement Test, items 13–18 are field-test items,
which are not released.



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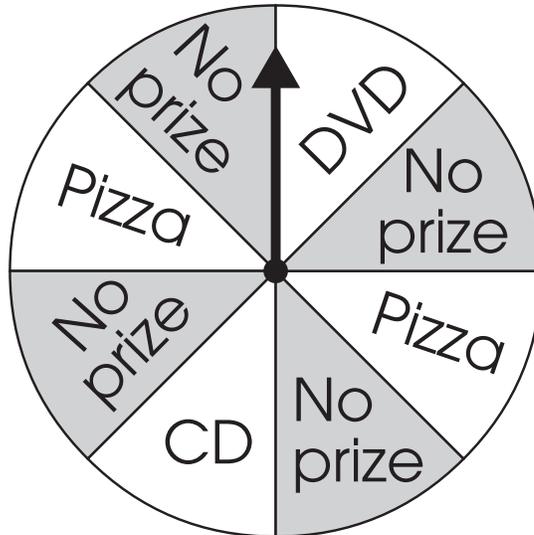
Mathematics

19. On a scale drawing of a house, a rectangular bedroom has a length of 8 inches and a perimeter of 30 inches. The scale is 0.5 inch = 1 foot.

What is the actual width in feet of the bedroom?

- A. 7 feet
- B. 14 feet
- C. 15 feet
- D. 22 feet

20. A class designed the spinner shown to award prizes at the school fair.



At the fair, 450 students spun the spinner. The class awarded 115 slices of pizza, 49 CDs and 78 DVDs.

How do the actual results differ from the expected results?

- A. The class awarded more CDs than expected.
- B. The class awarded fewer slices of pizza than expected.
- C. The class awarded more DVDs than expected.
- D. The actual results do not differ from the expected results.



Item 21 has not been slated for public release
in 2008.



22. Jim divided 8 by a number. His result was greater than 8.

Which number could Jim have used?

A. $2\frac{1}{2}$

B. $\frac{1}{2}$

C. 1

D. -4

Item 23 has not been slated for public release
in 2008.



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Mathematics

24. A family drove 164 miles to an amusement park. It took them $2\frac{3}{4}$ hours. The average rate for the drive home was 10 miles per hour less than the average rate for the drive to the park.

Approximately how long did it take the family to get home?

- A. 2 hours 20 minutes
- B. 2 hours 40 minutes
- C. 3 hours 20 minutes
- D. 3 hours 40 minutes



25. The table shows the prices of 10 different brands of jeans.

Prices of Jeans (in dollars)									
30	30	40	48	50	50	55	55	58	88

How will the mean price and the median price change if the \$88 brand is removed from the data set?

- A. Both the mean and the median will decrease.
- B. The mean will decrease and the median will not change.
- C. The mean will not change and the median will decrease.
- D. Both the mean and the median will not change.

Item 26 has not been slated for public release in 2008.



27. According to the Woodlawn Park Zoo in Seattle, Washington, the average height in inches (h) of a baby giraffe during its first week can be described by the equation $h = 72 + 1.2d$, where d is the number of days since it was born.

Which statement explains the meaning of the 1.2 in the equation?

- A. The giraffe's growth after 1.2 days.
- B. The giraffe grows 1.2 inches a day.
- C. The giraffe is this tall after 1.2 weeks.
- D. The giraffe's initial height is 1.2 inches.

Items 28–30 have not been slated for public release in 2008.



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Mathematics

31. Four numbers are shown.

$$-0.45, \frac{5}{12}, 0, 247$$

In your **Answer Document**, explain why each number is a rational number or an irrational number.

For question 31, respond completely in your **Answer Document**. (2 points)

Items 32–33 have not been slated for public release in 2008.

34. A system of linear equations is shown.

$$y = 2x - 4$$

$$y = x - 1$$

Which is the solution to this system of equations?

- A. $x = -3, y = -4$
- B. $x = -1, y = -2$
- C. $x = 2, y = 0$
- D. $x = 3, y = 2$

Items 35–37 have not been slated for public release in 2008.

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Mathematics

38. Jerry has one red cube and one green cube. Each is numbered 1 through 6. He will roll both of them at the same time.

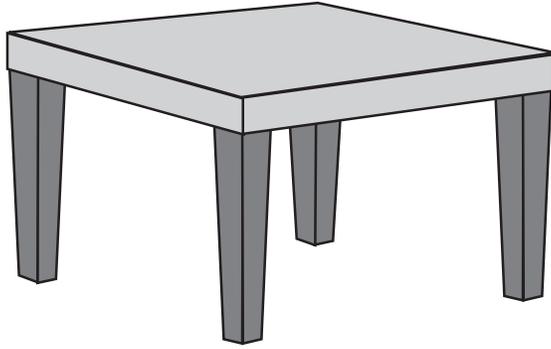
How many ways can the number on the red cube be exactly 2 greater than the number on the green cube?

- A. 1
- B. 2
- C. 4
- D. 9

Items 39–40 have not been slated for public release in 2008.



41. Ms. Carmichael's table is shown.



The square table top has an area of 369 square inches. The length of one side of the table top is between which two measurements?

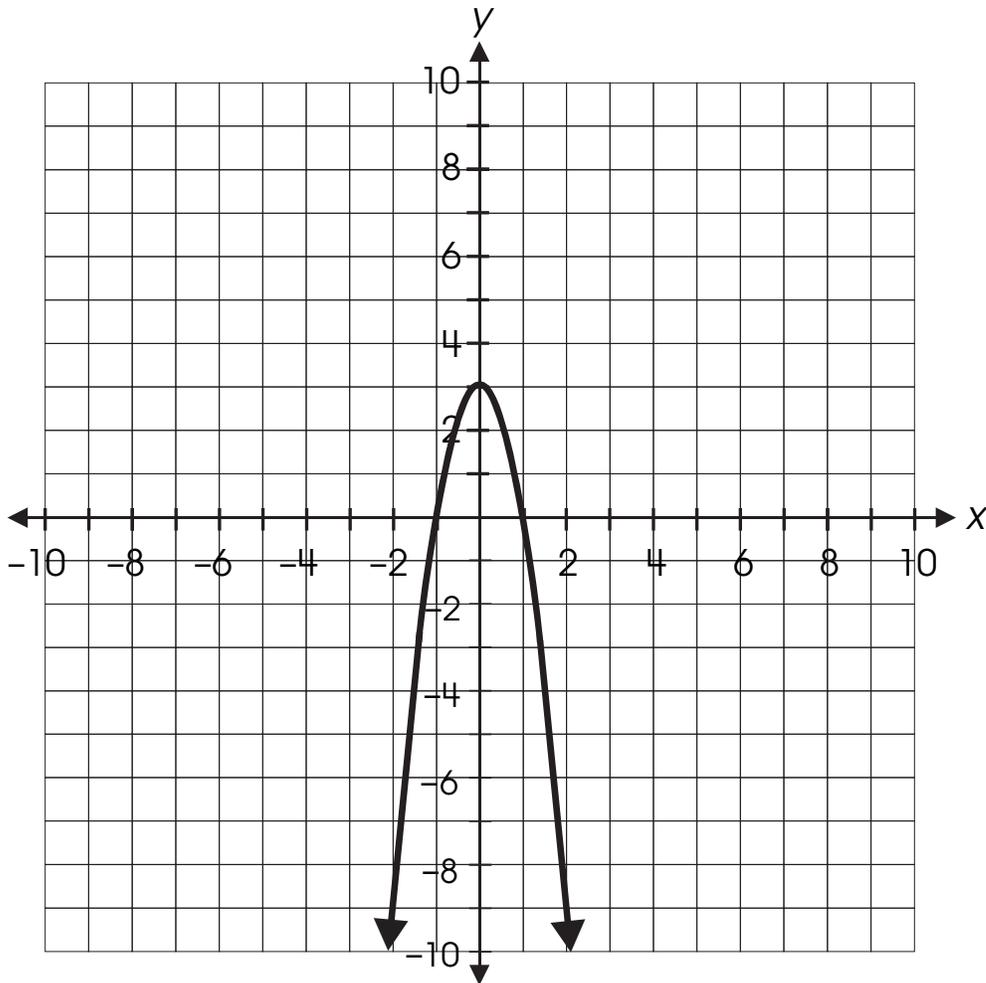
- A. 17 and 18 inches
- B. 18 and 19 inches
- C. 19 and 20 inches
- D. 20 and 21 inches



M

Mathematics

42. The graph represents the equation $y = -3x^2 + 3$.



What are the solutions to $0 = -3x^2 + 3$?

- A. 1 and -1
- B. 3 and -3
- C. 3 and 1
- D. 3 and -1

Item 43 has not been slated for public release
in 2008.

44. Which is a linear function?

A. $y = x^2 + 4$

B. $y = \frac{3}{5x}$

C. $y = 4x^3$

D. $y = \frac{1}{2}x$



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