

Student Name: _____

Ohio Achievement Tests



Mathematics Student Test Booklet May 2009

This test was originally administered to students in May 2009.

Not all items from the May 2009 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.

2. Joann's garden plot is 5 feet by 6 feet. Joann decides to double the length and the width of the garden.

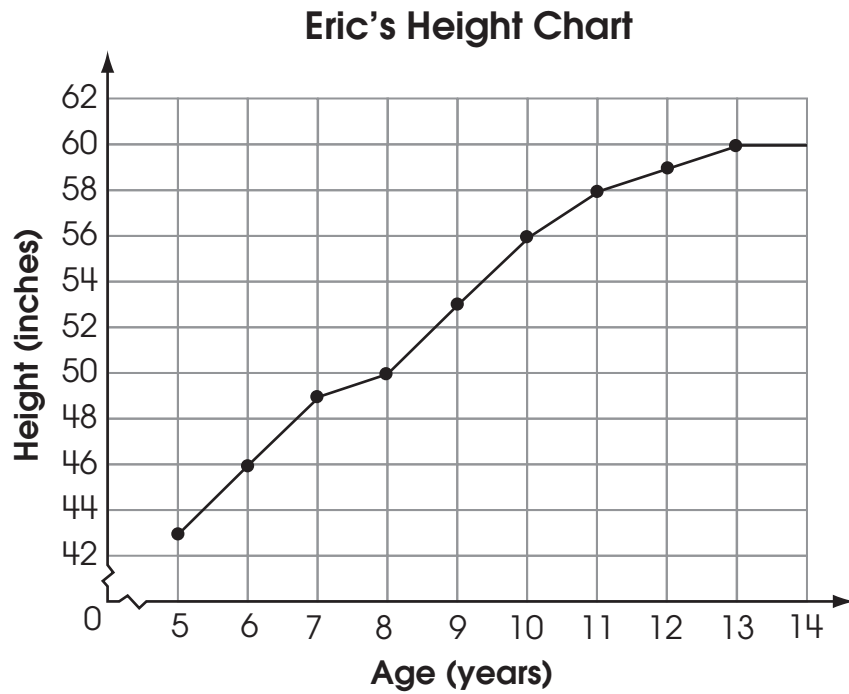
How does the perimeter of her garden change?

- A. The perimeter is one and a half times larger than the perimeter of the original garden.
- B. The perimeter is two times larger than the perimeter of the original garden.
- C. The perimeter is three times larger than the perimeter of the original garden.
- D. The perimeter is four times larger than the perimeter of the original garden.

Item 3 has not been slated for public release in 2009.



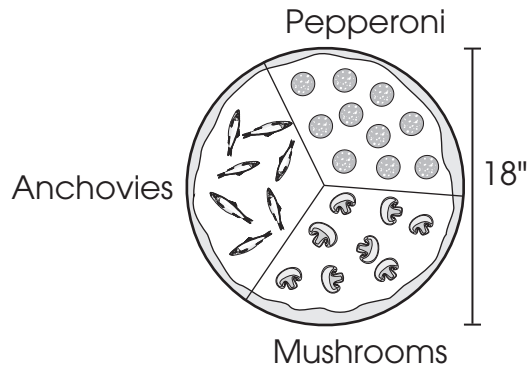
4. The line graph shows Eric's height from age 5 to age 13.



How many inches did Eric grow from age 7 to age 10?

- A. 3
- B. 7
- C. 49
- D. 56

5. Three friends ordered the pizza shown.



The pizza has a total area of 254.34 square inches and is divided into equal sections.

What is the area of the portion covered with mushrooms?

- A. 84.78 square inches
- B. 127.17 square inches
- C. 508.68 square inches
- D. 763.02 square inches

Item 6 has not been slated for public release in 2009.



M

Mathematics

7. Ina is playing a game with a cube that is labeled "win" on four sides and "lose" on two sides. She expects to "win" $\frac{2}{3}$ of the time.

She rolls the cube six times and records the results as shown.

1	2	3	4	5	6
win	lose	lose	lose	win	win

Which statement best explains why the results of her experiment did not match her expectations?

- A. She should have had another person roll the cube half the time.
- B. She really should not win $\frac{2}{3}$ of the time.
- C. She did not roll the cube enough times.
- D. She rolled the cube too many times.

8. What is the value of x when $3x + 11 = 20$?
- A. 3
 - B. $\frac{20}{3}$
 - C. 9
 - D. $\frac{31}{3}$
9. The lengths of the sides of a triangle are 3 inches, 4 inches and 5 inches.
- Which are the side lengths of a similar triangle?
- A. 6 inches, 7 inches, 8 inches
 - B. 6 inches, 8 inches, 10 inches
 - C. 9 inches, 12 inches, 20 inches
 - D. 9 inches, 16 inches, 25 inches

Item 10 has not been slated for public release in 2009.

11. Joan sees that shampoo, toothpaste and hair gel are on sale at the store. The signs show the regular price and the discount.

SHAMPOO	TOOTHPASTE	HAIR GEL
Regularly \$7.50	Regularly \$4.50	Regularly \$6.00
$\frac{1}{3}$ off	$\frac{1}{2}$ off	25% off

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

In your **Answer Document**, determine the amount that Joan will save when she buys one bottle of shampoo, one tube of toothpaste and one container of hair gel at the sale prices. Show or explain how much she will save.

Items 12–15 have not been slated for public release in 2009.

16. Brian has two rectangular gardens that have the same area but different perimeters. Each garden has an area of 48 square feet.

In your **Answer Document**, draw two different rectangles with an area of 48 square feet, but with different perimeters.

Then, determine which of your designs will require less fencing.

For question 16, respond completely in your **Answer Document**. (2 points)

On the May 2009 Grade 6 Mathematics Achievement Test, items 17–22 are field-test items, which are not released.

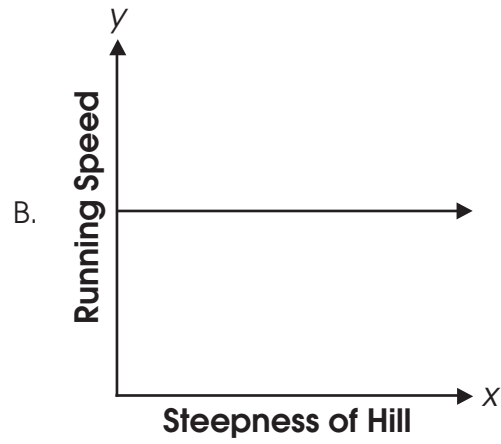


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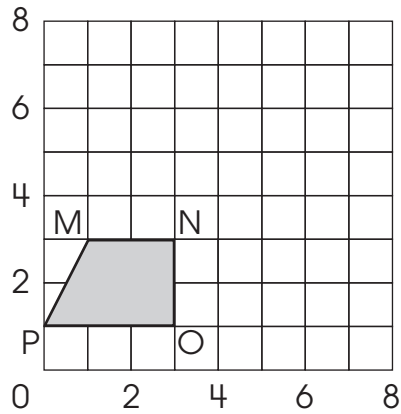
Mathematics

23. Lawrence knows that as the steepness of a hill increases, his running speed decreases.

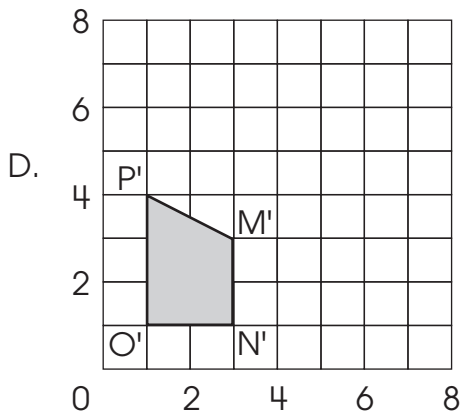
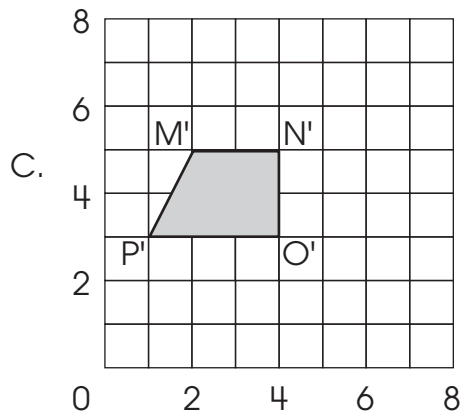
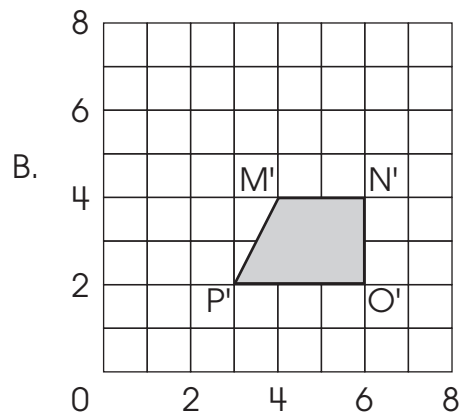
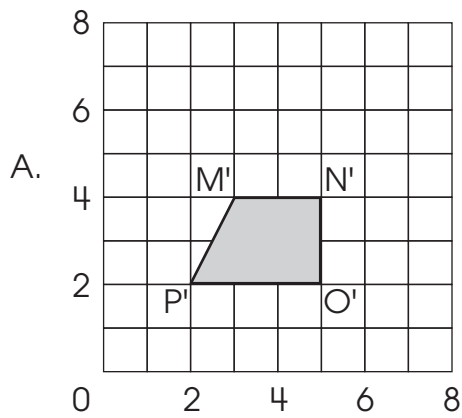
Which graph shows this relationship?



24. Figure MNOP is shown on the grid.



Which grid shows the result of translating the figure two units to the right and one unit up?



M

Mathematics

25. At Stone Middle School, the band has a concert every 4 weeks and the drama club has a play every 6 weeks. Both groups performed during the first week of school.

When is the next time the band and the drama club will perform in the same week?

- A. in 2 weeks
- B. in 10 weeks
- C. in 12 weeks
- D. in 24 weeks

Item 26 has not been slated for public release in 2009.



27. The table shows the elevations (heights above sea level) and average high temperatures for five cities in California during the month of February.

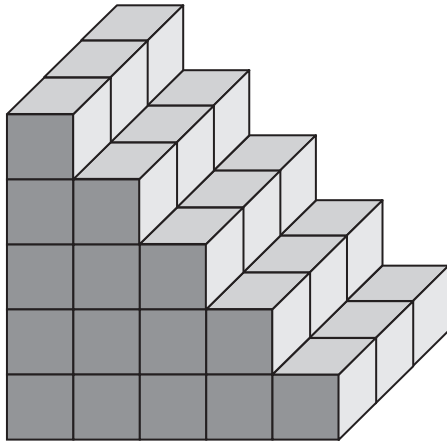
California Cities	Height Above Sea Level	Average High Temperature for February
California City	2,300 ft	62°F
Death Valley	-282 ft	73°F
Independence	4,121 ft	60°F
Los Angeles	256 ft	70°F
San Bernardino	1,350 ft	69°F

What conclusion about the average high temperature can be drawn from these data?

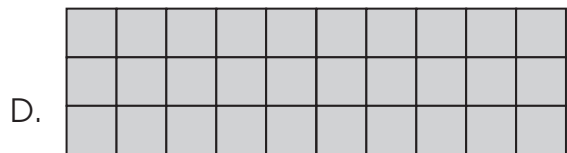
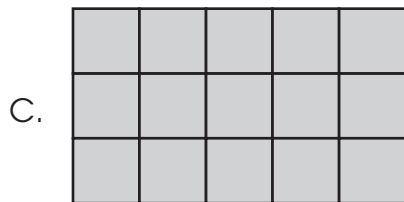
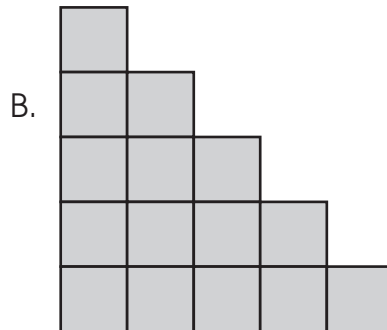
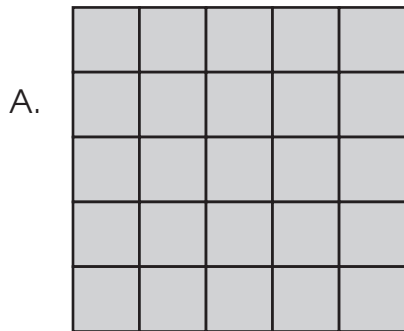
- A. The elevation of the city is unrelated to the temperature.
- B. The lower the elevation of the city, the lower the temperature.
- C. The greater the elevation of the city, the lower the temperature.
- D. The greater the elevation of the city, the greater the temperature.

Items 28–29 have not been slated for public release in 2009.

30. A staircase at Summerville Mall is designed as shown.



Which figure shows what the staircase would look like when viewed from above?

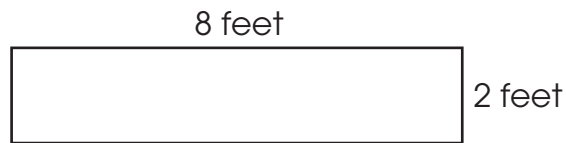


Item 31 has not been slated for public release in 2009.

32. Which value for f makes the inequality $7f - 9 > 12$ true?
- A. when f is -3
 - B. when f is 1
 - C. when f is 3
 - D. when f is 5



33. Winn planned to build a rectangular dog pen with the dimensions shown.



He bought all the fencing but decided the pen was too small for his dog.

What could be the dimensions of a new rectangular pen that has more space but uses the same amount of fencing?

- A. 1 foot \times 9 feet
- B. 4 feet \times 4 feet
- C. 6 feet \times 4 feet
- D. 10 feet \times 10 feet

Item 34 has not been slated for public release in 2009.

M

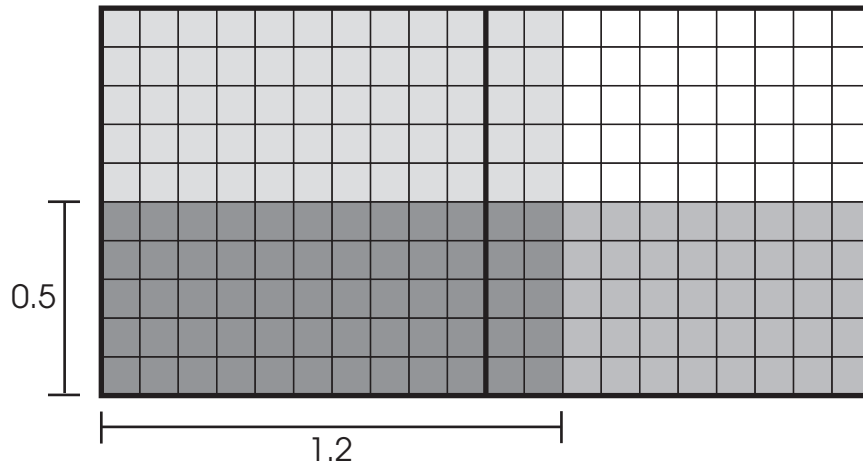
Mathematics

35. Which angle measures are those of an acute triangle?
- A. $95^\circ, 40^\circ, 45^\circ$
 - B. $75^\circ, 15^\circ, 90^\circ$
 - C. $65^\circ, 80^\circ, 35^\circ$
 - D. $100^\circ, 40^\circ, 40^\circ$

Item 36 has not been slated for public release in 2009.



37. The product of 0.5 and 1.2 is shown in the grid.



Based on the grid, what is the product of 0.5 and 1.2?

- A. 0.60
- B. 1.00
- C. 1.20
- D. 1.70

Items 38–39 have not been slated for public release in 2009.

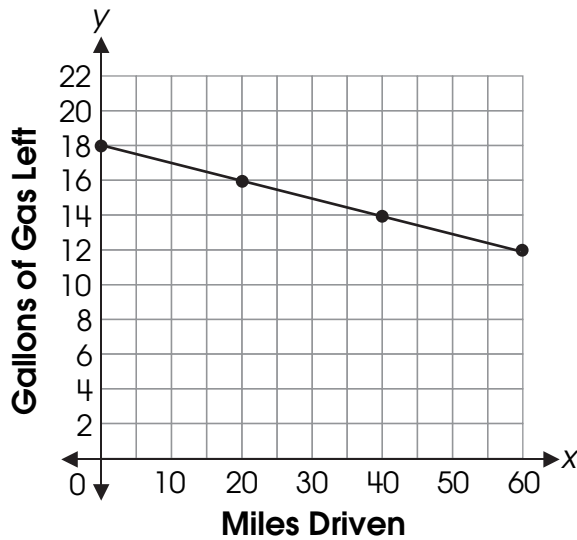


40. A pancake recipe uses 4 eggs to make 14 pancakes. Jeremy has 10 eggs.

What is the greatest number of pancakes that Jeremy can make?

- A. 14
- B. 18
- C. 35
- D. 56

41. The graph shows the relationship between gallons of gas left in the gas tank of a truck and the number of miles driven.



For question 41, respond completely in your **Answer Document**. (2 points)

In your **Answer Document**, determine the number of miles per gallon the truck gets. Explain how you found the number of miles per gallon.

Items 42–45 have not been slated for public release in 2009.



**Grade 6 Mathematics
Answer Key
Spring 2009**

Item No.	Type	Content Standards	Content Standard Benchmark	Key
1	Multiple Choice	Number, Number Sense, and Operations	D	Not for Public Release
2	Multiple Choice	Measurement	F	B
3	Multiple Choice	Patterns, Functions, and Algebra	E	Not for Public Release
4	Multiple Choice	Data Analysis and Probability	A	B
5	Multiple Choice	Measurement	C	A
6	Short Answer	Geometry and Spatial Sense	D	Not for Public Release
7	Multiple Choice	Data Analysis and Probability	K	C
8	Multiple Choice	Patterns, Functions, and Algebra	H	A
9	Multiple Choice	Geometry and Spatial Sense	F	B
10	Multiple Choice	Data Analysis and Probability	A	Not for Public Release
11	Extended Response	Number, Number Sense, and Operations	I	4 pt rubric
12	Multiple Choice	Patterns, Functions, and Algebra	A	Not for Public Release
13	Multiple Choice	Measurement	C	Not for Public Release
14	Multiple Choice	Geometry and Spatial Sense	A	Not for Public Release
15	Multiple Choice	Number, Number Sense, and Operations	I	Not for Public Release
16	Short Answer	Measurement	G	2 pt rubric
17 – 22	Field Test Items Not Used in Student Score			
23	Multiple Choice	Patterns, Functions, and Algebra	J	D
24	Multiple Choice	Geometry and Spatial Sense	H	A
25	Multiple Choice	Number, Number Sense, and Operations	G	C
26	Short Answer	Patterns, Functions, and Algebra	A	Not for Public Release
27	Multiple Choice	Data Analysis and Probability	G	C
28	Multiple Choice	Measurement	E	Not for Public Release
29	Multiple Choice	Number, Number Sense, and Operations	H	Not for Public Release
30	Multiple Choice	Geometry and Spatial Sense	I	C
31	Short Answer	Number, Number Sense, and Operations	G	Not for Public Release
32	Multiple Choice	Patterns, Functions, and Algebra	K	D
33	Multiple Choice	Measurement	F	C
34	Multiple Choice	Number, Number Sense, and Operations	C	Not for Public Release
35	Multiple Choice	Geometry and Spatial Sense	D	C
36	Extended Response	Data Analysis and Probability	G	Not for Public Release
37	Multiple Choice	Number, Number Sense, and Operations	I	A
38	Multiple Choice	Measurement	C	Not for Public Release
39	Multiple Choice	Patterns, Functions, and Algebra	G	Not for Public Release
40	Multiple Choice	Number, Number Sense, and Operations	I	C
41	Short Answer	Patterns, Functions, and Algebra	K	2 pt rubric
42	Multiple Choice	Data Analysis and Probability	E	Not for Public Release
43	Multiple Choice	Geometry and Spatial Sense	D	Not for Public Release
44	Multiple Choice	Number, Number Sense, and Operations	E	Not for Public Release
45	Multiple Choice	Patterns, Functions, and Algebra	L	Not for Public Release

Limited = 0-14; Basic = 15-20; Proficient = 21-29; Accelerated = 30-35; Advanced = 36-50
Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points