

Student Name: \_\_\_\_\_

# Ohio Achievement Assessments



## Mathematics Student Test Booklet Spring 2011

*This test was originally administered to students in Spring 2011.*

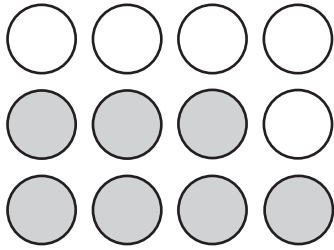
*Not all items from the Spring 2011 administration will be released in this document. According to Ohio Revised Code (ORC) 3301.07.11:4(b) . . . not less than forty percent of the questions on the test that are used to compute a student's score shall be a public record. The department (of education) 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.*

# M

## Mathematics

1. An arrangement of circles is shown.



What is the ratio of shaded circles to unshaded circles?

A.  $\frac{5}{12}$

B.  $\frac{7}{12}$

C.  $\frac{5}{7}$

D.  $\frac{7}{5}$

Item 2 has not been slated for public release in 2011.

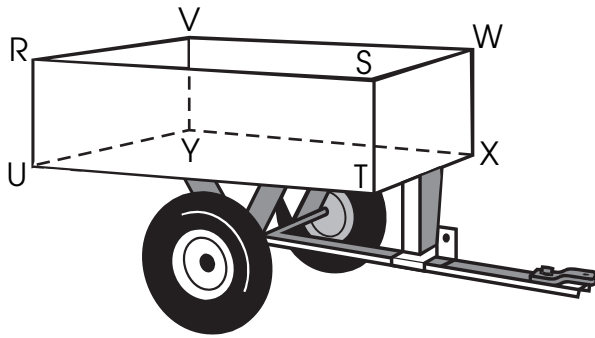
# M

## Mathematics

3. Which expression represents  $7^4$ ?

- A.  $7 \times 4$
- B.  $7 + 4$
- C.  $7 \times 7 \times 7 \times 7$
- D.  $4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4$

4. Jill built the wagon shown.

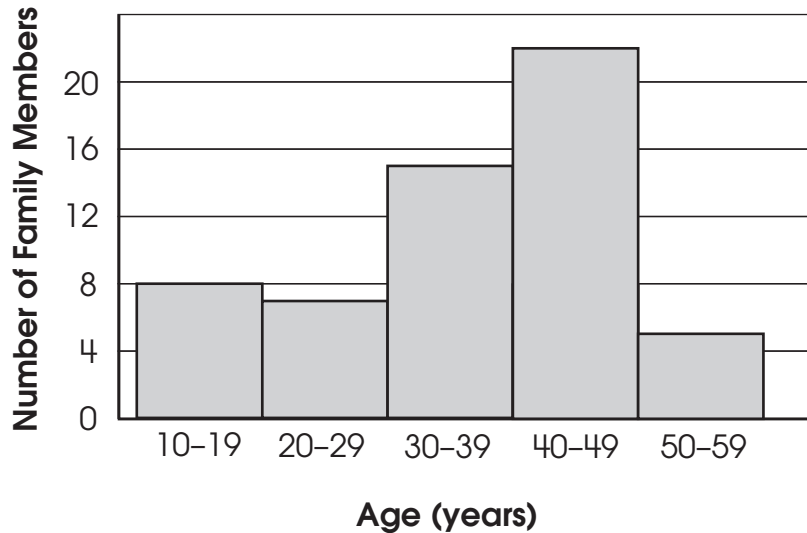


Which pair of planes are parallel?

- A. RSTU and VYUR
- B. UYXT and VYUR
- C. RSTU and VWXY
- D. UYXT and VWXY

5. Tom went to his family reunion. The histogram shows the ages of Tom's family members who were at the family reunion.

**Ages at a Family Reunion**



Which **cannot** be determined from these data?

- A. number of family members at the reunion
- B. age of the oldest family member at the reunion
- C. number of family members older than 39 at the reunion
- D. number of family members younger than 20 at the reunion

# M

## Mathematics

6. In your **Answer Document**, state one property that squares and rhombuses share. Then state one property that one of these shapes has but the other shape does not necessarily have.

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

7. While standing outside Carmen's Computer Store, Phyllis noticed that 14 people left the store and 10 people entered the store. Later, 5 more people entered and 13 people left.

What was the net increase or decrease in the number of people in Carmen's Computer Store?

- A. an increase of 12
- B. a decrease of 12
- C. an increase of 42
- D. a decrease of 42



Items 8–9 have not been slated for public release  
in 2011.

10. A number pattern is shown.

1, 4, 10, 22, 46, ...

Which rule describes how to find the next term in  
the pattern?

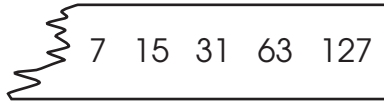
- A. Add 3 to the previous term.
- B. Add 24 to the previous term.
- C. Multiply the previous term  
by 2, then add 1.
- D. Add 1 to the previous term,  
then multiply by 2.



# M

## Mathematics

26. Steve found a piece of paper with the numbers of a pattern written on it as shown.



The paper was ripped, and the first two numbers in the pattern were missing.

In your **Answer Document**, state a rule for the pattern.

Then, show how to use your rule to find the first two numbers in the pattern.

For question 26, respond completely in your **Answer Document**. (2 points)

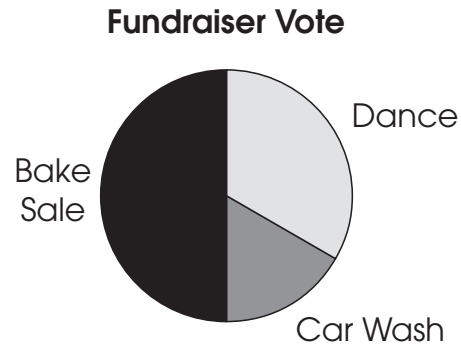
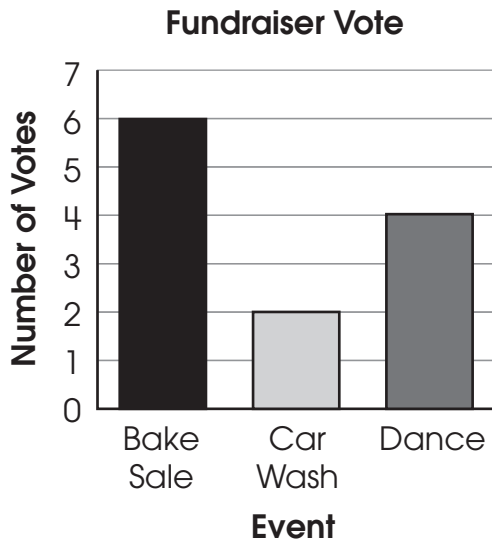
Items 27–29 have not been slated for public release in 2011.



# M

## Mathematics

30. A club surveyed its members about what kind of fundraiser they would like to have. The data are shown.



Which statement describes how the two graphs are different?

- A. Only one graph shows the actual number of votes.
- B. Only one graph shows that half voted for the bake sale.
- C. Only one graph shows that the car wash is the least popular.
- D. Only one graph shows that more students voted for the dance than for the car wash.



31. Ms. Mason is packaging science supplies for groups of students. She has 40 hand lenses, 32 pairs of tweezers and 28 pens. She wants to package the supplies so that every group has the same number of hand lenses, tweezers and pens.

In your **Answer Document**, use prime factorization to determine the greatest number of packages she can make without having leftover items.

Then, determine the number of lenses, tweezers and pens that will be in each package.

Show how you determined your answer.

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

32. The Tasty Soup Company uses 200 square inches of material to make each 500-milliliter soup can.

What does the 200 square inches represent?

- A. the height of the can
- B. the volume of the can
- C. the perimeter of the can
- D. the surface area of the can

Items 33–35 have not been slated for public release in 2011.

# M

## Mathematics

36. The number of Jeff's Diners from 2000 to 2003 is shown.

Year	Number of Locations
2000	109
2001	221
2002	333
2003	439

In your **Answer Document**, create an appropriate graph of these data to predict the number of restaurant locations for 2007. Be sure to give your graph a title and labels.

Explain how you predicted the number of restaurants in 2007.

For question 36, respond completely in your **Answer Document**. (4 points)

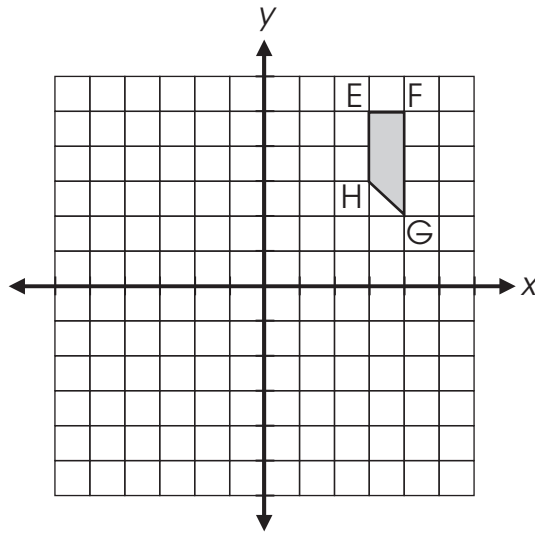
37. Which estimate is closest to the sum of  $2\frac{2}{10}$  and  $4\frac{7}{8}$ ?

- A. 6
- B. 7
- C. 8
- D. 70

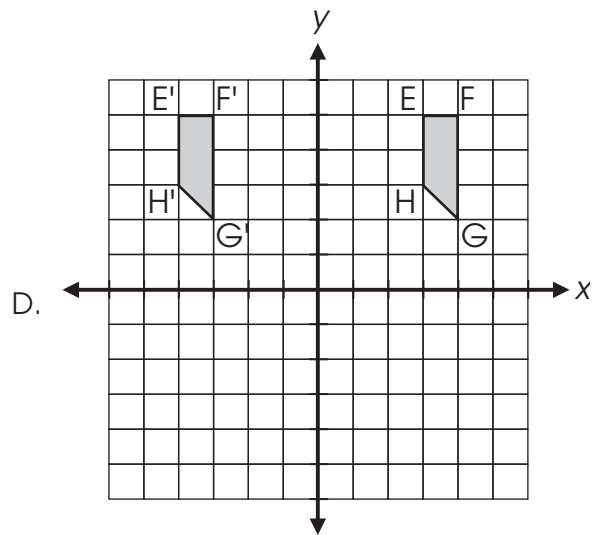
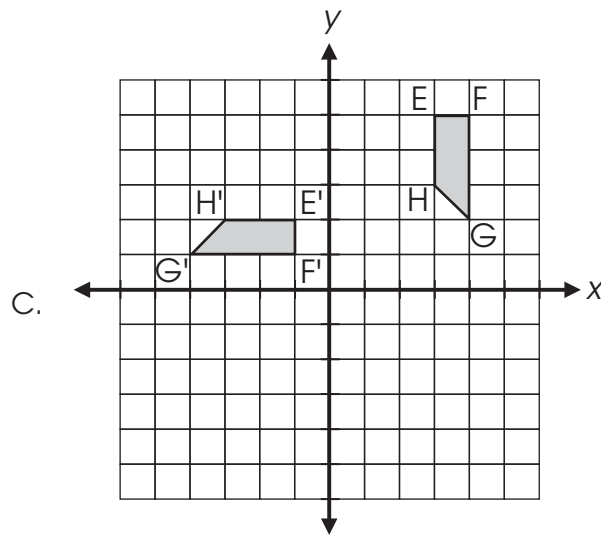
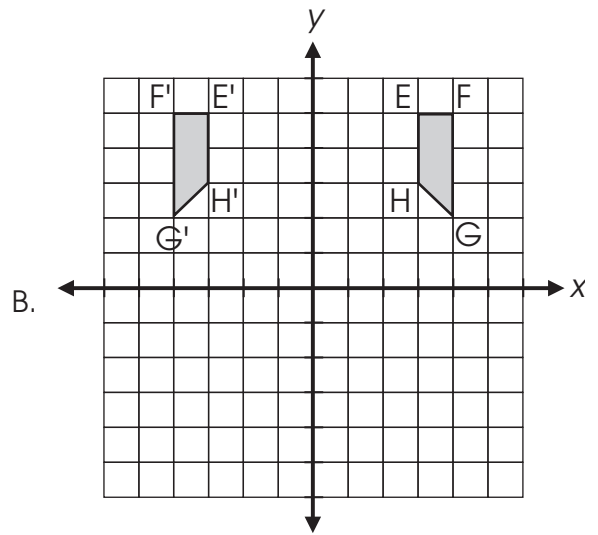
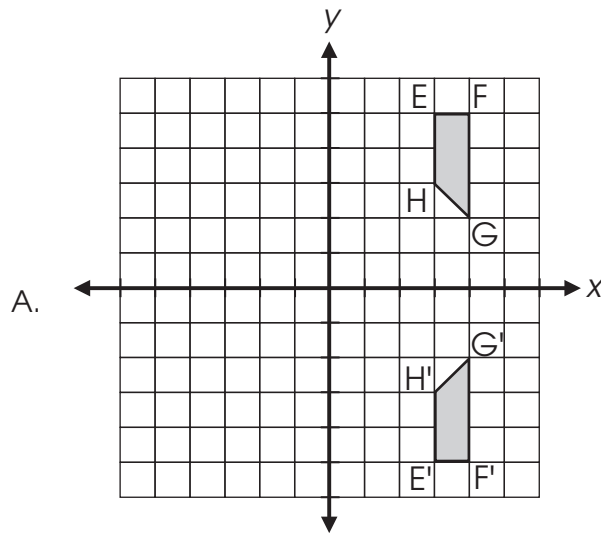
Items 38–41 have not been slated for public release in 2011.



42. Figure EFGH is shown on the grid.



Which grid shows a reflection of the shaded figure across the  $y$ -axis?



# M

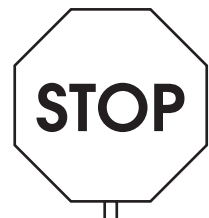
## Mathematics

43. Which situation shows change occurring at a constant rate?
- A. the movement of a car in a traffic jam
  - B. the movement of a second hand around a clock
  - C. the movement of the wind over a 24-hour period
  - D. the movement of a basketball player on the court in a game

44. Simplify the expression by using order of operations:

$$4^3 \div (4 \times 2)$$

- A. 1.5
  - B. 6
  - C. 8
  - D. 32
45. What is the value of  $10m - 2k$  when  $k = 2$  and  $m = 5$ ?
- A. 10
  - B. 46
  - C. 54
  - D. 83



**Grade 6 Mathematics  
Answer Key  
Spring 2011**

<b>Item No.</b>	<b>Type</b>	<b>Content Standard</b>	<b>Content Standard Benchmark</b>	<b>Key</b>
1	Multiple Choice	Number, Number Sense and Operations	D	D
2	Multiple Choice	Patterns, Functions, and Algebra	C	Not for public release
3	Multiple Choice	Number, Number Sense and Operations	G	C
4	Multiple Choice	Geometry and Spatial Sense	A	C
5	Multiple Choice	Data Analysis and Probability	A	B
6	Short Answer	Geometry and Spatial Sense	D	2 pt rubric
7	Multiple Choice	Number, Number Sense and Operations	I	B
8	Multiple Choice	Measurement	C	Not for public release
9	Multiple Choice	Number, Number Sense and Operations	C	Not for public release
10	Multiple Choice	Patterns, Functions, and Algebra	A	D
11	Extended Response	Measurement	F	Not for public release
<b>12-17</b>	<b>Field Test questions not used for student score</b>			
18	Multiple Choice	Patterns, Functions, and Algebra	C	Not for public release
19	Multiple Choice	Data Analysis and Probability	E	Not for public release
20	Multiple Choice	Number, Number Sense and Operations	I	Not for public release
21	Short Answer	Geometry and Spatial Sense	J	Not for public release
22	Multiple Choice	Patterns, Functions, and Algebra	A	Not for public release
23	Multiple Choice	Data Analysis and Probability	A	Not for public release
24	Multiple Choice	Patterns, Functions, and Algebra	C	Not for public release
25	Multiple Choice	Measurement	C	Not for public release
26	Short Answer	Patterns, Functions, and Algebra	A	2 pt rubric
27	Multiple Choice	Number, Number Sense and Operations	I	Not for public release
28	Multiple Choice	Geometry and Spatial Sense	G	Not for public release
29	Multiple Choice	Patterns, Functions, and Algebra	D	Not for public release
30	Multiple Choice	Data Analysis and Probability	D	A
31	Short Answer	Number, Number Sense and Operations	G	2 pt rubric
32	Multiple Choice	Measurement	G	D
33	Multiple Choice	Patterns, Functions, and Algebra	H	Not for public release
34	Multiple Choice	Number, Number Sense and Operations	D	Not for public release
35	Multiple Choice	Geometry and Spatial Sense	I	Not for public release
36	Extended Response	Data Analysis and Probability	G	4 pt rubric
37	Multiple Choice	Number, Number Sense and Operations	I	B
38	Multiple Choice	Geometry and Spatial Sense	F	Not for public release
39	Multiple Choice	Measurement	F	Not for public release
40	Multiple Choice	Data Analysis and Probability	B	Not for public release
41	Short Answer	Number, Number Sense and Operations	H	Not for public release
42	Multiple Choice	Geometry and Spatial Sense	H	B
43	Multiple Choice	Patterns, Functions, and Algebra	L	B
44	Multiple Choice	Number, Number Sense and Operations	E	C
45	Multiple Choice	Patterns, Functions, and Algebra	G	B

Limited = 0-14; Basic = 15-19; Proficient = 20-28; Accelerated = 29-33; Advanced = 34-50

Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points