

Student Name: _____

Ohio Achievement Assessments



Mathematics Student Test Booklet Spring 2010

This test was originally administered to students in Spring 2010.

Not all items from the Spring 2010 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. Caroline wants to show the change in population of her town from year to year.

Which graph is most appropriate for her to use?

- A. line plot
- B. histogram
- C. line graph
- D. circle graph

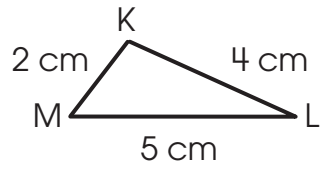
2. An input-output table is shown.

| Input | Output |
|-------|--------|
| 0 | 1 |
| 2 | 5 |
| 6 | m |
| 10 | 21 |

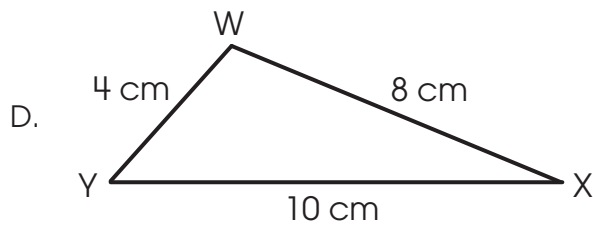
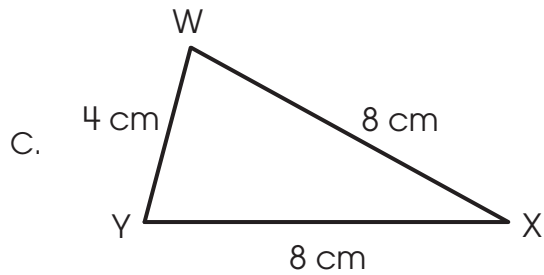
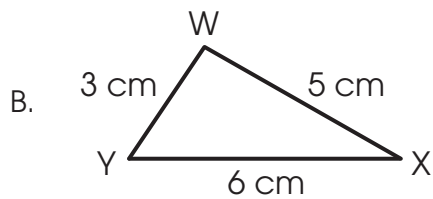
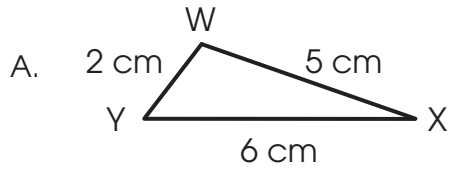
Which value of m fits the pattern in the table?

- A. 7
- B. 9
- C. 12
- D. 13

3. Triangle KLM is shown.



Which triangle is similar to triangle KLM?



Item 4 has not been slated for public release in 2010.

5. When Juan swims straight across the middle of a circular lake, he swims about 100 meters. When he walks around the edge of the lake, he walks about 300 meters.

Based on this information, which statement describes the relationship between the circumference and the diameter of the circle?

- A. The circumference is about one-third of the diameter.
- B. The circumference is about three times the diameter.
- C. The diameter is about half of the circumference.
- D. The diameter is about three times the circumference.



6. The chart shows the number of boys and girls in Ms. Martin's class.

| | | | |
|---|---|---|---|
| B | B | B | B |
| B | B | B | B |
| G | G | G | G |
| G | G | G | G |
| G | G | G | G |

B = Boy
G = Girl

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

Ms. Martin asked Ashley and Jonathan to find a ratio related to the chart. Ashley gave the ratio 8:12 and Jonathan gave the ratio 8:20.

In your **Answer Document**, explain why both students are correct.

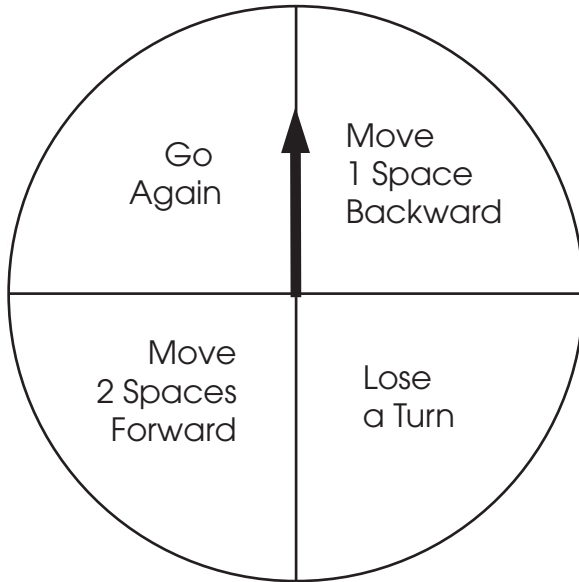
Then, give a third ratio and explain how your ratio relates to the class.

Items 7–8 have not been slated for public release
in 2010.

M

Mathematics

9. Derek and Meredith are playing a game with the spinner shown.



Which activity would best show whether this spinner is fair?

- A. Spin it 1 time and see which section it lands on.
- B. Spin it 4 times and see whether it lands on each section once.
- C. Spin it 60 times and see whether it lands on "Go Again" about 30 times.
- D. Spin it 100 times and see whether it lands on each section about 25 times.

Item 10 has not been slated for public release in 2010.

11. Bobby is helping his mother make a fruit salad. The sign shows the prices for the three kinds of fruit he needs for the fruit salad.

| | |
|----------------|--------------|
| Bananas | 3 for \$0.99 |
| Pears | 4 for \$1.28 |
| Oranges | 6 for \$1.50 |

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

Bobby's mother tells him that they need 5 bananas, 10 pears and 15 oranges for the salad.

In your **Answer Document**, determine the total cost for the amount of fruit that Bobby needs. Show or explain your work.

M

Mathematics

14. Martha is remodeling a house. She wants to put 1-foot-square tiles on the bathroom floor. She decides to change the size of the bathroom from 5 feet by 8 feet to 10 feet by 8 feet.

How many more tiles will she need for the larger bathroom floor?

- A. 5 tiles
 - B. 8 tiles
 - C. 40 tiles
 - D. 80 tiles
15. Bob and Jim were each eating their own small pizza. Their pizzas were the same size. Bob had $\frac{1}{3}$ of his pizza left and Jim had $\frac{3}{8}$ of his pizza left.

Which pair of equivalent fractions will help them find the total amount of pizza they have left?

- A. $\frac{1}{3}$ and $\frac{3}{3}$
- B. $\frac{8}{8}$ and $\frac{3}{8}$
- C. $\frac{1}{24}$ and $\frac{3}{24}$
- D. $\frac{8}{24}$ and $\frac{9}{24}$

Item 16 has not been slated for public release in 2010.

M

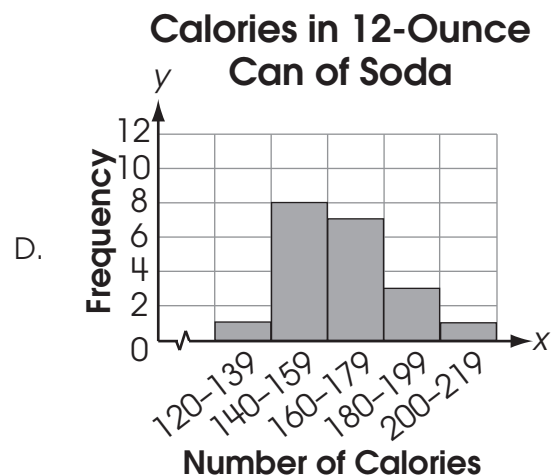
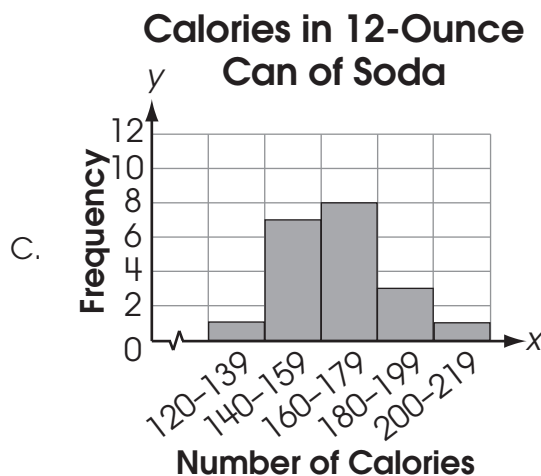
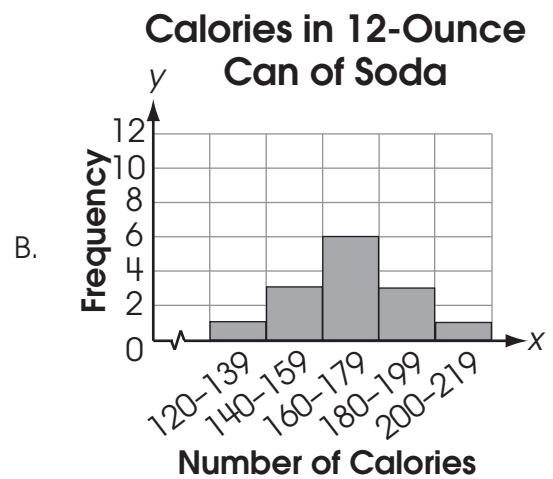
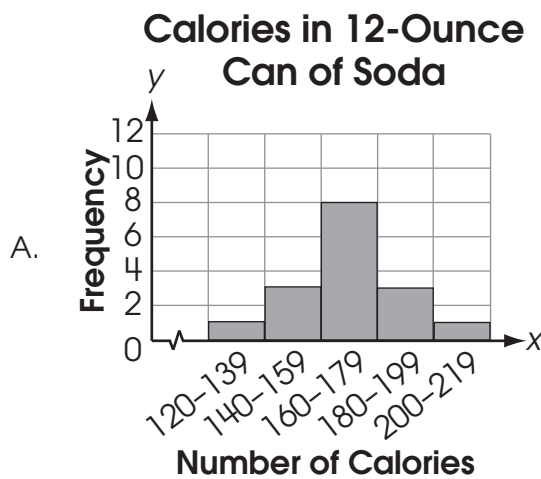
Mathematics

17. Colin found the number of calories in a 12-ounce can for 20 kinds of soda and recorded them in the frequency table shown.

| Number of Calories | Frequency | Number of Calories | Frequency |
|--------------------|-----------|--------------------|-----------|
| 135 | 1 | 167 | 1 |
| 144 | 1 | 170 | 1 |
| 150 | 5 | 172 | 1 |
| 156 | 1 | 183 | 1 |
| 160 | 3 | 186 | 1 |
| 162 | 1 | 195 | 1 |
| 166 | 1 | 210 | 1 |

He created a histogram to display the data.

Which histogram correctly displays these data?



M

Mathematics

21. The students in a class checked out library books for their book reports. All the books came from five categories: fiction, biography, science, history, and the arts.

The librarian wants to make a graph to show the teachers and students which categories of books were used most often by students for their book reports. She could create a bar graph or a circle graph.

In your **Answer Document**, state one advantage of using the bar graph and one advantage of using the circle graph to show the number of books the students chose from the five categories.

For question 21, respond completely in your **Answer Document**. (2 points)

On the Spring 2010 Grade 6 Mathematics Achievement Assessment, items 22–27 are field-test items, which are not released.



Item 28 has not been slated for public release in 2010.

29. Kate has a paper route. She earns \$5.00 each week and \$0.25 for each paper she delivers.

Kate can use the equation $e = \$5 + \$0.25n$, where e represents the total amount of money earned and n represents the number of papers she delivers, to find the amount of money she can earn.

How much money will Kate earn when she delivers 40 papers in one week?

- A. \$ 5.25
- B. \$15.00
- C. \$30.00
- D. \$45.00



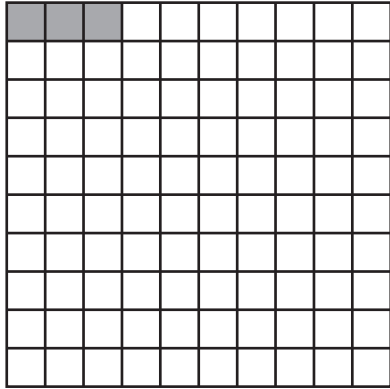
M

Mathematics

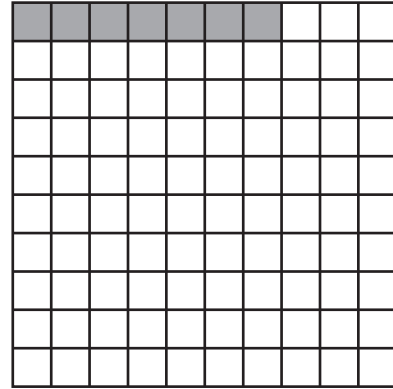
30. Tierra ordered a medium pizza from Jimmy's Pizzeria. She ate 3 of the 10 slices.

Which model has a shaded region that represents the amount of pizza that Tierra ate?

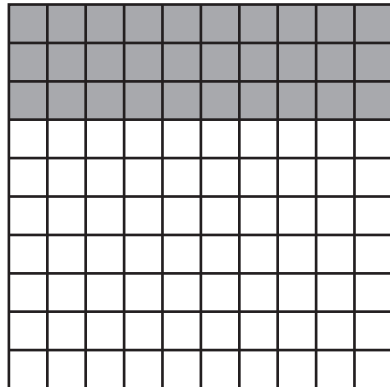
A.



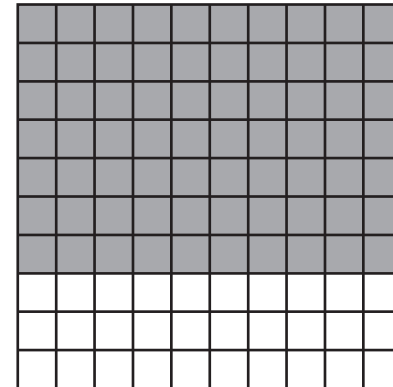
B.



C.

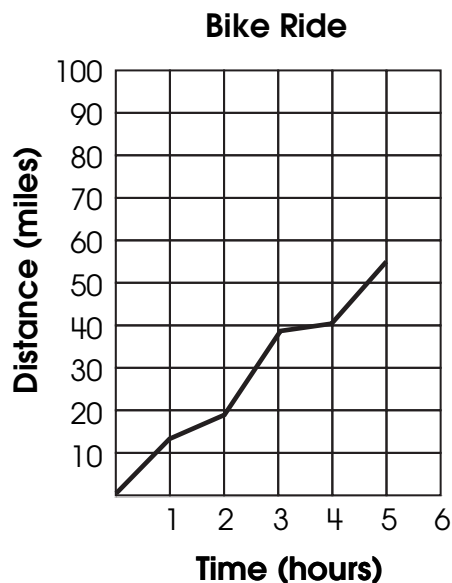


D.



Item 31 has not been slated for public release in 2010.

32. The graph shows the distance from home during a bike ride.



Which describes how the distance changes over time?

- A. The distance decreases at a constant rate.
- B. The distance increases at a constant rate.
- C. The distance decreases at a varying rate.
- D. The distance increases at a varying rate.

35. The principal creates a list that shows how many students are in each grade. The mode is 52.

Which statement explains what the mode represents?

- A. The largest number of students in any grade is 52.
- B. More grades have 52 students than any other number.
- C. The middle number of students on the list is 52.
- D. The difference between the largest and the smallest number of students in each grade is 52.



Items 36–37 have not been slated for public release
in 2010.

38. What is the largest number that divides
35, 56 and 84 evenly?
- A. 1
 - B. 4
 - C. 5
 - D. 7



Items 39–41 have not been slated for public release
in 2010.

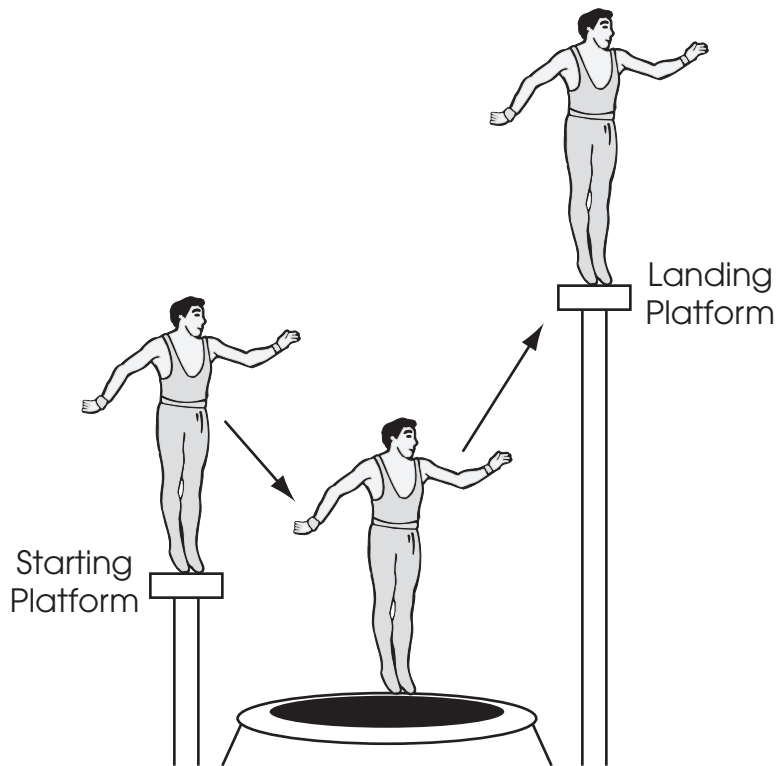
42. Molly wants to buy 3 shirts that cost \$24.68 each.
Tax is included in this price.

Which is the best estimate of the amount of
money Molly will need to buy 3 shirts?

- A. \$25
- B. \$28
- C. \$75
- D. \$90



43. A circus acrobat uses a trampoline and two platforms for part of his act, as shown.



The height of the landing platform can be found by doubling the height of the starting platform and then adding 2 feet. The landing platform has a height of 10 feet.

What is the height of the starting platform?

- A. 4 feet
- B. 5 feet
- C. 10 feet
- D. 22 feet

Items 44–45 have not been slated for public release
in 2010.

**Grade 6 Mathematics
Answer Key
Spring 2010**

| Item No. | Type | Content Standard | Content Standard Benchmark | Key |
|-----------------|---|-------------------------------------|-----------------------------------|------------------------|
| 1 | Multiple choice | Data analysis and probability | E | C |
| 2 | Multiple choice | Patterns, functions and algebra | A | D |
| 3 | Multiple choice | Geometry and spatial sense | F | D |
| 4 | Multiple choice | Number, number sense and operations | I | Not for public release |
| 5 | Multiple choice | Measurement | C | B |
| 6 | Short answer | Number, number sense and operations | D | 2 pt rubric |
| 7 | Multiple choice | Patterns, functions and algebra | C | Not for public release |
| 8 | Multiple choice | Measurement | F | Not for public release |
| 9 | Multiple choice | Data analysis and probability | K | D |
| 10 | Multiple choice | Geometry and spatial sense | D | Not for public release |
| 11 | Extended response | Number, number sense and operations | I | 4 pt rubric |
| 12 | Multiple choice | Measurement | G | Not for public release |
| 13 | Multiple choice | Patterns, functions and algebra | K | Not for public release |
| 14 | Multiple choice | Measurement | F | C |
| 15 | Multiple choice | Number, number sense and operations | H | D |
| 16 | Short answer | Geometry and spatial sense | D | Not for public release |
| 17 | Multiple choice | Data analysis and probability | A | C |
| 18 | Multiple choice | Patterns, functions and algebra | G | Not for public release |
| 19 | Multiple choice | Number, number sense and operations | D | Not for public release |
| 20 | Multiple choice | Geometry and spatial sense | H | Not for public release |
| 21 | Short answer | Data analysis and probability | E | 2 pt rubric |
| 22 - 27 | Field Test Items Not Used in Student Score | | | |
| 28 | Multiple choice | Number, number sense and operations | G | Not for public release |
| 29 | Multiple choice | Patterns, functions and algebra | G | B |
| 30 | Multiple choice | Number, number sense and operations | C | C |
| 31 | Short answer | Geometry and spatial sense | A | Not for public release |
| 32 | Multiple choice | Patterns, functions and algebra | M | D |
| 33 | Multiple choice | Number, number sense and operations | D | Not for public release |
| 34 | Multiple choice | Measurement | A | Not for public release |
| 35 | Multiple choice | Data analysis and probability | F | B |
| 36 | Extended response | Patterns, functions and algebra | E | Not for public release |
| 37 | Multiple choice | Geometry and spatial sense | A | Not for public release |
| 38 | Multiple choice | Number, number sense and operations | G | D |
| 39 | Multiple choice | Data analysis and probability | J | Not for public release |
| 40 | Multiple choice | Geometry and spatial sense | A | Not for public release |
| 41 | Short answer | Measurement | C | Not for public release |
| 42 | Multiple choice | Number, number sense and operations | I | C |
| 43 | Multiple choice | Patterns, functions and algebra | C | A |
| 44 | Multiple choice | Measurement | E | Not for public release |
| 45 | Multiple choice | Data analysis and probability | E | Not for public release |

Limited = 0-12; Basic = 13-18; Proficient = 19-27; Accelerated = 28-34; Advanced = 35-50
Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points