

Student Name: _____

Ohio Achievement Tests



Mathematics Student Test Booklet

May 2007

This test was originally administered to students in May 2007.

Not all items from the May 2007 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.

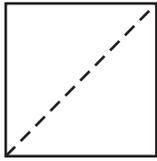
Directions:

Today you will be taking the Ohio Grade 7 Mathematics Achievement Test. Three different types of questions appear on this test: multiple choice, short answer and extended response.

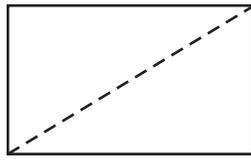
There are several important things to remember:

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.
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.
8. When you finish the test, you may not go on to, or look at, the writing section of the Student Test Booklet.

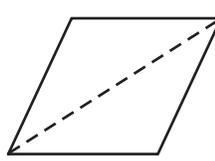
- Find the product. $(10)(-5)$
 - 50
 - 5
 - 5
 - 50
- The diagonals divide each figure into two triangles.



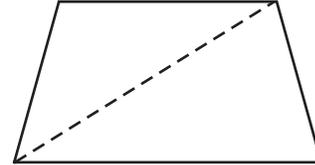
Square



Rectangle



Rhombus



Trapezoid

Which of the figures are always divided into congruent triangles by the diagonal?

- only the square and rectangle
 - only the rhombus and trapezoid
 - only the square, rectangle and rhombus
 - only the rectangle, rhombus and trapezoid
- Jennie calculated the probabilities of various events involving a coin.

What is the probability of a coin landing on heads at least twice when the coin is flipped three times?

- $\frac{1}{8}$
- $\frac{1}{6}$
- $\frac{1}{4}$
- $\frac{1}{2}$

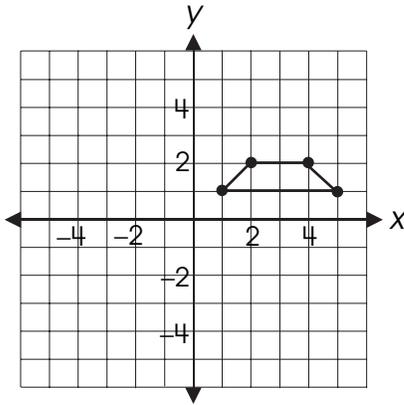
Items 4–5 have not been slated for
public release in 2007.

M

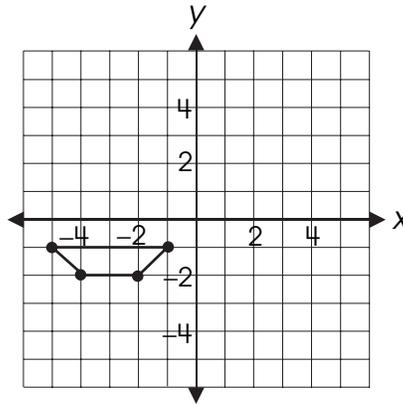
Mathematics

6. A trapezoid has been transformed on the coordinate plane as shown.

Trapezoid A



Trapezoid B



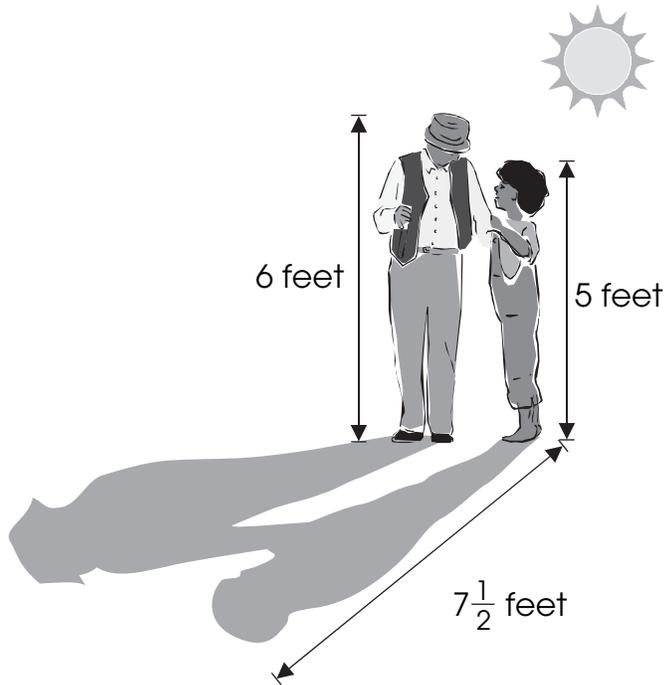
For question 6, respond completely in your **Answer Document**. (2 points)

In your **Answer Document**, describe two different ways that trapezoid A can be transformed to create trapezoid B.

Item 7 has not been slated for public release in 2007.

8. For $y = -7x - 4$, as the value of y decreases, what happens to the value of x ?
- A. The value of x increases.
 - B. The value of x decreases.
 - C. The value of x stays the same.
 - D. The value of x increases and decreases.

9. Oscar and his father are standing side by side with the sun behind them, as shown.



Oscar's shadow is $7\frac{1}{2}$ feet long.
How long is his father's shadow?

- A. 4 feet
- B. $6\frac{1}{4}$ feet
- C. $8\frac{1}{2}$ feet
- D. 9 feet

M

Mathematics

10. Which operation should be completed first when simplifying the expression $5 + 8(6 - 2^2) \div 4$?
- A. $5 + 8$
 - B. $8 \cdot 2$
 - C. $6 - 2$
 - D. 2^2

11. Julius has created a number pattern. The first number in his pattern is 1. Then, he says, "the next number in my pattern can always be determined by multiplying the previous number by 2 and then adding 3."

In your **Answer Document**, copy and complete the table showing the first six numbers in Julius' number pattern.

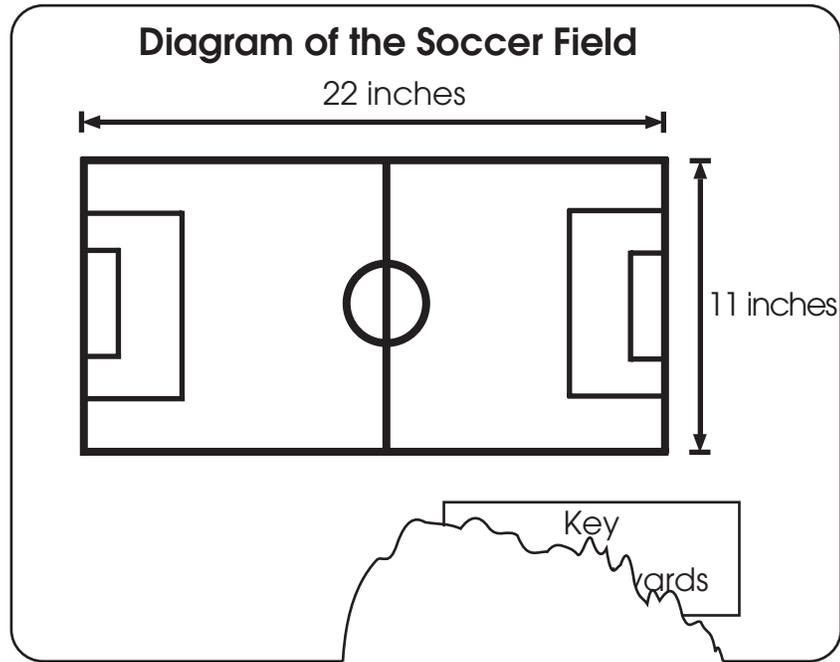
For question 11, respond completely in your **Answer Document**. (4 points)

Term	1	2	3	4	5	6
Number	1					

Use the table to decide if Julius' number pattern changes at a constant rate and explain how you know.

Julius claims that 100 cannot be a number in his pattern. Explain whether Julius' claim is valid and how you know.

12. At the start of each soccer season, Lucy uses the diagram shown to help her put lines on the soccer field.



Her diagram is torn, and part of the key is missing. She knows that an actual soccer field is 110 yards long.

What should the key say?

- A. 1 inch = 5 yards
- B. 1 inch = 11 yards
- C. 1 inch = 22 yards
- D. 1 inch = 110 yards

Items 13–16 have not been slated for public release in 2007.



M

Mathematics

17. The graph of $5x - 2y = 10$ intersects the x -axis and the y -axis.

What are the ordered pairs for these two points of intersection?

- A. $(2, 0)$ and $(0, 5)$
- B. $(2, 0)$ and $(0, -5)$
- C. $(-2, 0)$ and $(0, 5)$
- D. $(-2, 0)$ and $(0, -5)$

Item 18 has not been slated for public release in 2007.

19. The school librarian tracked how many books were checked out each day during a one-week period.

Day of the Week	Number of Books
Monday	265
Tuesday	234
Wednesday	28
Thursday	210
Friday	265

Which of these measures is most affected by the number of books that were checked out on Wednesday?

- A. the mean
 - B. the mode
 - C. the median
 - D. the maximum
20. A realtor advertises the office space in a building as 3,600 square feet. The office space is square shaped.

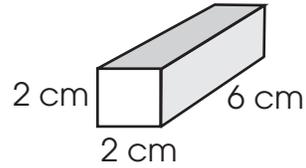
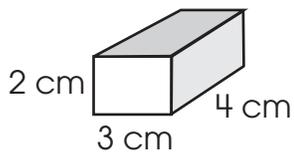
What is the length of each side of the office space?

- A. 25 feet
- B. 60 feet
- C. 300 feet
- D. 900 feet

On the May 2007 Grade 7 Mathematics Achievement Test, items 21-27 are field-test items, which are not released.



28. How do the volumes and surface areas of these rectangular prisms compare?



- A. The volumes are the same, but the surface areas are different.
- B. The volumes and surface areas are the same.
- C. The volumes are different, but the surface areas are the same.
- D. The volumes and surface areas are both different.

Item 29 has not been slated for public release in 2007.

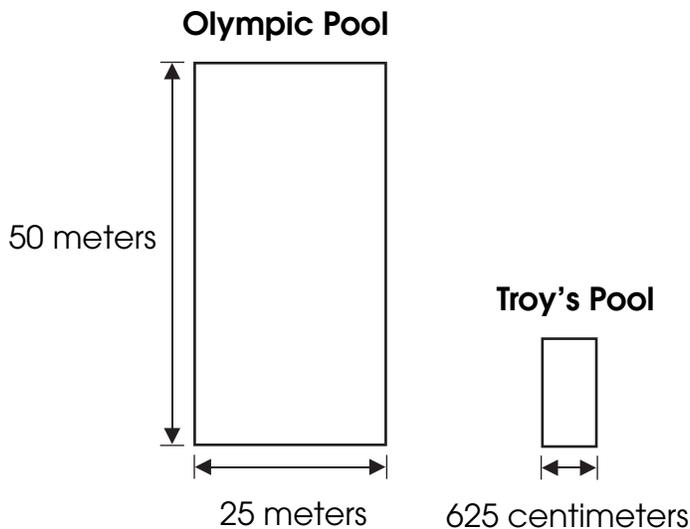
M

Mathematics

30. May Li read the first 30 pages of a novel in half an hour. The entire novel is 250 pages long. She wants to estimate how long it will take her to finish the book.

Which rate would be an appropriate measure of her reading speed?

- A. hours per page
 - B. minutes per book
 - C. pages per minute
 - D. seconds per page
31. An Olympic-size pool is shown.



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

Troy is building a pool that is proportional to the Olympic-size pool. The width of his pool will be 625 centimeters.

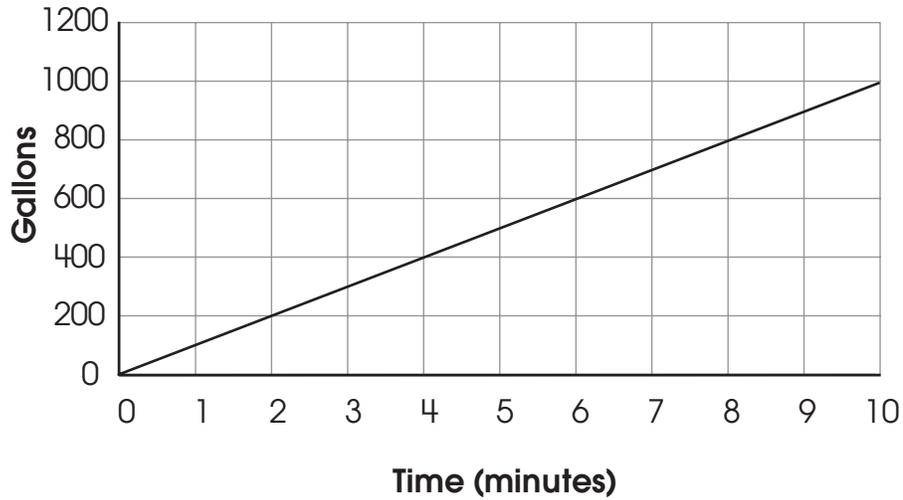
In your **Answer Document**, find the scale factor Troy will use to build his pool.

Then show or explain how you found the scale factor. Use the scale factor to find the length of Troy's pool. Show or explain how you found the length.

Items 32–33 have not been slated for
public release in 2007.

34. Sarah created a graph to show the number of gallons in the tank as it is being filled with water over a 10-minute period.

Amount of Water in the Tank Over 10 Minutes



Sarah decided to change the scale on the y-axis to 250, 500, 750, 1,000, 1,250, and 1,500. How will this affect the line representing the amount of water in the tank?

- A. The new line will be steeper.
- B. The new line will be less steep.
- C. The new line will curve upward.
- D. The new line will curve downward.



Items 35–39 have not been slated for public release in 2007.



40. The quotient of two negative integers is always:

- A. zero
- B. one
- C. negative
- D. positive



Item 41 has not been slated for public release in 2007.

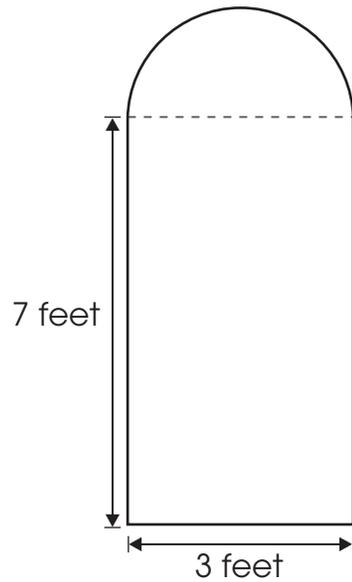
42. Archie rolls two number cubes, each with sides numbered 1 through 6. He then finds the sum of the numbers on the tops of the cubes.

Which two sums have the same probability?

- A. 3 and 4
- B. 5 and 9
- C. 5 and 8
- D. 10 and 12



43. A window consists of a semicircle and a rectangle, as shown.



What is the approximate area of the window?

- A. 21 square feet
- B. $24\frac{1}{2}$ square feet
- C. 28 square feet
- D. $35\frac{1}{2}$ square feet

M

Mathematics

Items 44–45 have not been slated for public release in 2007.

