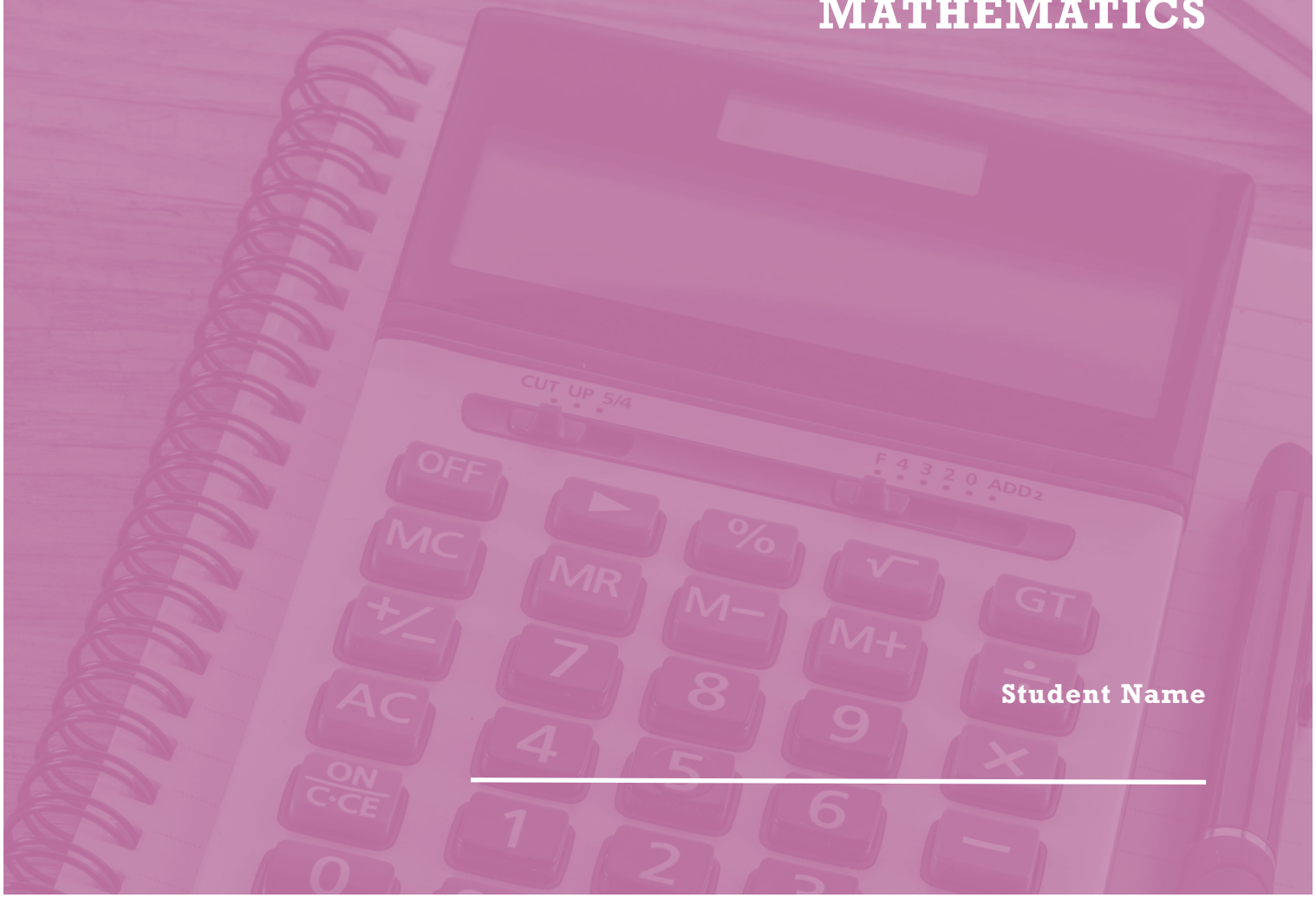
Ohio | Department of Education

Ohio's State Tests

PRACTICE TEST

GRADE 8 MATHEMATICS



Student Name

_____

Ohio's State Tests Reference Sheet
Grade 8

1 mile = 1,760 yards

1 mile = 5,280 feet

1 pound = 16 ounces

1 cup = 8 fluid ounces

1 pint = 2 cups

1 quart = 2 pints

1 gallon = 4 quarts

1 kilometer = 1,000 meters

1 meter = 100 centimeters

1 centimeter = 10 millimeters

1 kilogram = 1,000 grams

1 liter = 1,000 milliliters

Cylinder	$V = \pi r^2 h$	Pyramid	$V = \frac{1}{3} B h$
Sphere	$V = \frac{4}{3} \pi r^3$	Cone	$V = \frac{1}{3} \pi r^2 h$

Directions for Completing the Response Grids

1. Work the problem, and find an answer.

2. Write your answer in the answer boxes at the top of the grid in the **Answer Document**.

    - Write only one digit or symbol in each answer box.

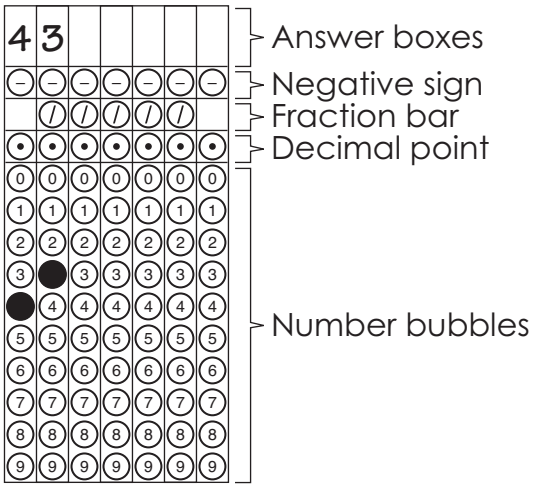
    - Be sure to write a decimal point, negative sign or fraction bar in the answer box if it is a part of the answer.

3. Fill in a bubble under each box in which you wrote your answer in the **Answer Document**.

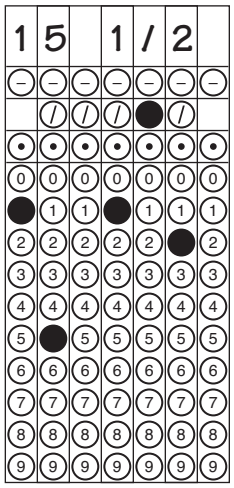
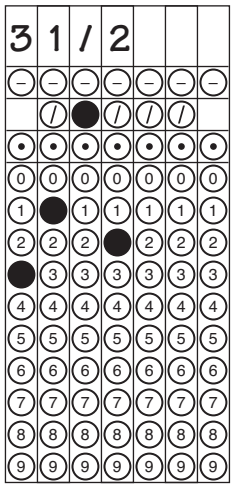
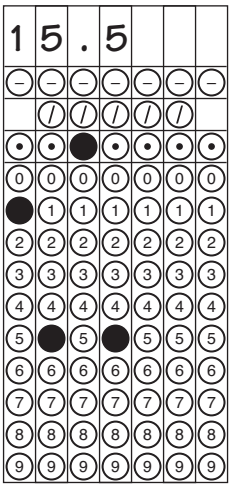
    - Fill in one and ONLY one bubble for each answer box. Do NOT fill in a bubble under an unused answer box.

    - Fill in each bubble by making a solid mark that completely fills the circle.

    - You MUST fill in the bubbles accurately to receive credit for your answer.



You can record a mixed number in several different ways. You can write it as:

a. A whole number and a fraction (15 1/2). Be sure to include a space between the whole number and the fraction. 	b. An equivalent fraction (31/2) 	c. An equivalent decimal (15.5) 

Directions:

Today you will be taking the Ohio Grade 8 Mathematics Practice Assessment.

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. Then, choose or write the answer you think is best in your Answer Document.

2. Use only a #2 pencil to answer questions on this test.

3. For questions with bubbled responses, choose the correct answer and then fill in the circle with the appropriate letter in your Answer Document. Make sure the number of the question in this Student Test Booklet matches the number in your Answer Document. If you change your answer, make sure you erase your old answer completely. Do not cross out or make any marks on the other choices.

4. For questions with response boxes, write your answer neatly, clearly and only in the space provided in your Answer Document. Any responses written in your Student Test Booklet will not be scored. Make sure the number of the question in this Student Test Booklet matches the number in your Answer Document.

5. If you do not know the answer to a question, skip it and go on to the next question. If you have time, go back to the questions you skipped and try to answer them before turning in your Student Test Booklet and Answer Document.

6. Check over your work when you are finished.

1. Triangle ABC has vertices A (0, 1), B (2, 5), and C (6, 3). Triangle A'B'C' is created by reflecting triangle ABC over the *y*-axis.

   What is the *x*-coordinate of vertex C' ?

   Complete the response grid in the **Answer Document**.

2. Which table represents a nonlinear function?

A.

x	*y*
–1	3
1	5
4	8
10	14

B.

x	*y*
0	0
4	12
6	18
9	27

C.

x	*y*
2	–3
5	–9
7	–13
11	–21

D.

x	*y*
2	5
4	17
8	65
10	101

3. The value of $\sqrt{k}$ lies between 2.2 and 2.3.

   In the **Answer Document**, select all possible values of *k*.

   A. 1.49

   B. 4.8

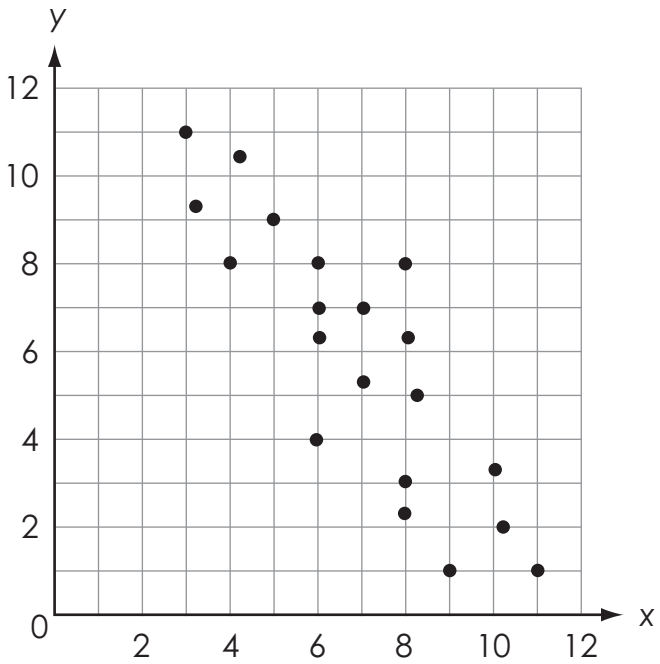
   C. 5

   D. 5.04

   E. 5.3

   F. 6

4. A scatterplot is shown.



   Which statement about the scatterplot is true?

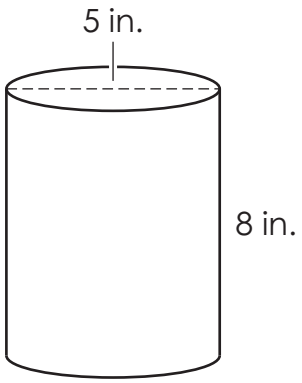
   A. There is no association between x and y.

   B. There is a positive, linear association between x and y.

   C. There is a negative, linear association between x and y.

   D. There is a nonlinear association between x and y.

5. A candle in the shape of a cylinder has the dimensions shown, in inches (in.).



What is the volume, in cubic inches ($in.^3$), of the candle? Round your answer to the nearest hundredth.

Complete the response grid in the **Answer Document**.

6. In the **Answer Document**, select all of the equations that represent a nonlinear function.

A. $y = 3x^2 + 9x + 6$

B. $y = 3x - 10$

C. $y = 2x + 9 + x$

D. $y = x(3x + 10)$

E. $y = \frac{x}{3} + 10$

7.

This item cannot be rendered as a paper/pencil item.

8. An expression is shown.

$2.1 \times 10^5 + 4.3 \times 10^4$

Which expression is equivalent?

A. 2.53×10^4

B. 2.53×10^5

C. 6.4×10^5

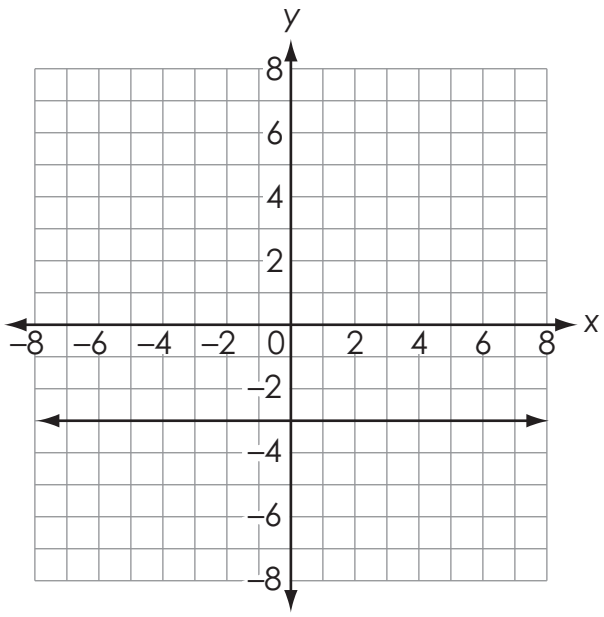
D. 6.4×10^9

9.

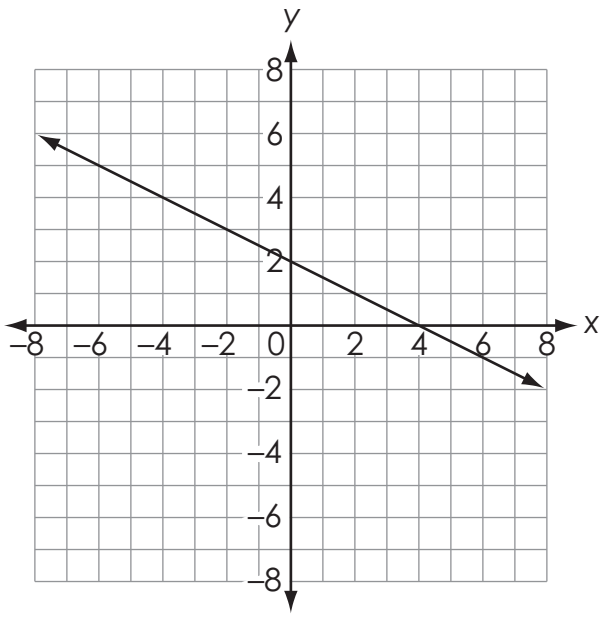
This item cannot be rendered as a paper/pencil item.

10. Which graph represents a function that is decreasing at a nonconstant rate?

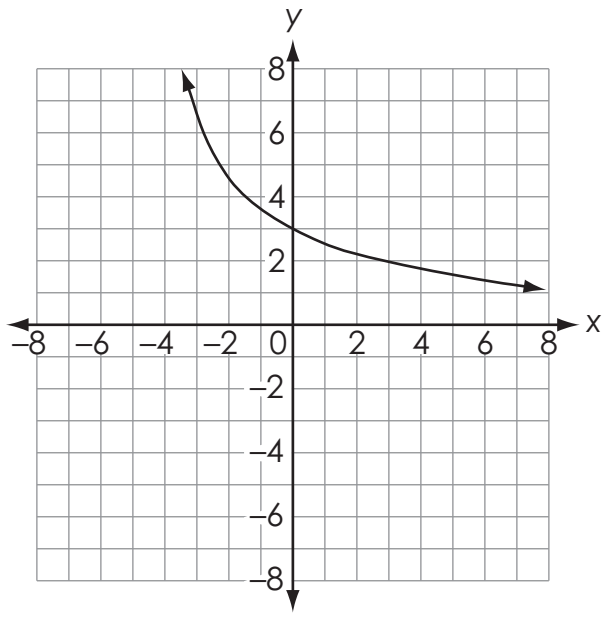
A.



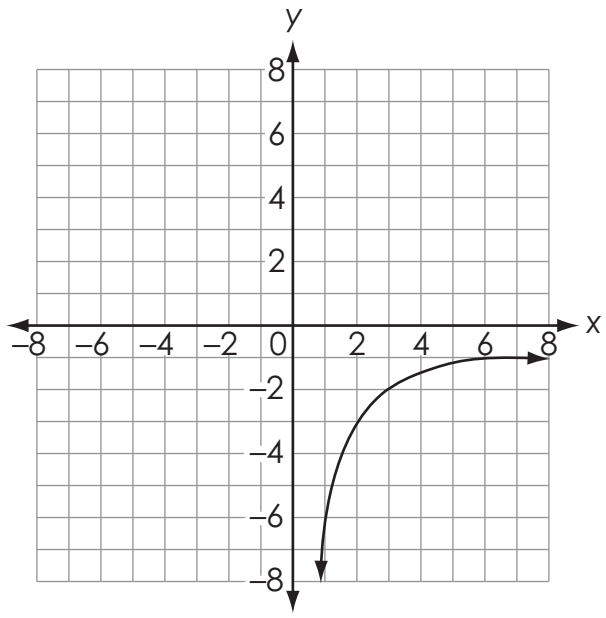
B.



C.



D.



11. In the **Answer Document**, select a box to identify whether each equation has no solution, one solution, or infinitely many solutions.

	No Solution	One Solution	Infinitely Many Solutions
$-2x + 3 = -3x + 2$	A	B	C
$-2x + 3 = -2x + 3$	D	E	F
$-2x + 3 = 2x + 3$	G	H	I

12.

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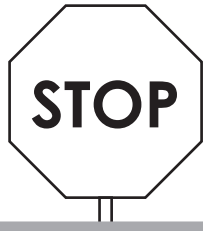

Do not go on

Do not go on

Do not go on

1. The density of an object is given by the equation shown.

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

A scientist has evidence that a newly discovered planet has a mass of 7.0×10^{24} kilograms (kg) and a volume of 3.5×10^{12} cubic kilometers (km^3).

What is the planet's density?

A. $2.0 \times 10^{2} \frac{kg}{km^3}$

B. $2.0 \times 10^{12} \frac{kg}{km^3}$

C. $2.0 \times 10^{36} \frac{kg}{km^3}$

D. $3.5 \times 10^{2} \frac{kg}{km^3}$

2.

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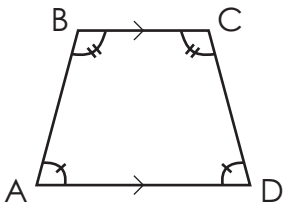
3. Isosceles trapezoid ABCD is shown. It is rotated to create trapezoid EFGH.



Which statement is true?

A. $\overline{EF} \parallel \overline{HG}$

B. $\angle A \cong \angle F$

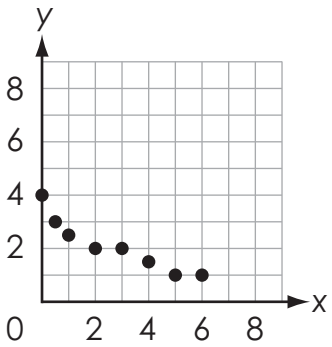
C. $\angle B \cong \angle H$

D. $\overline{FG} \parallel \overline{EH}$

4.

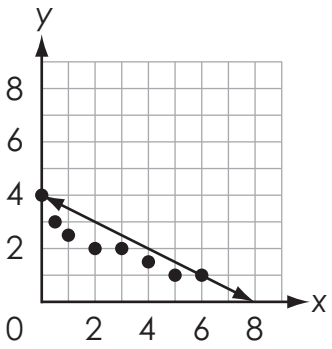
This item cannot be rendered as a paper/pencil item.

5. A scatterplot of some data is shown.

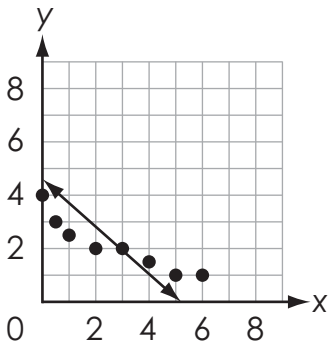


Which model **best** represents the data?

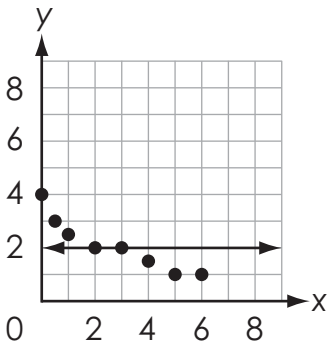
A.



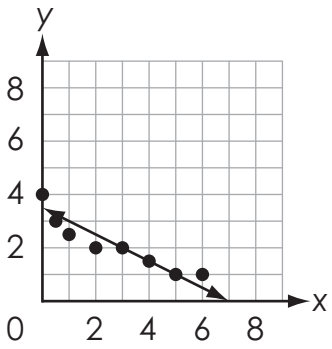
B.



C.



D.



6. What is the distance between (1, 3) and (13, 8) on the coordinate plane?

   Complete the response grid in the **Answer Document**.

7. An expression is given.

   $$\frac{(3^2)^3 \cdot 3^6}{3^4}$$

   In the **Answer Document**, select all of the expressions that are equivalent to the given expression.

   A. 3^3

   B. 3^7

   C. 3^8

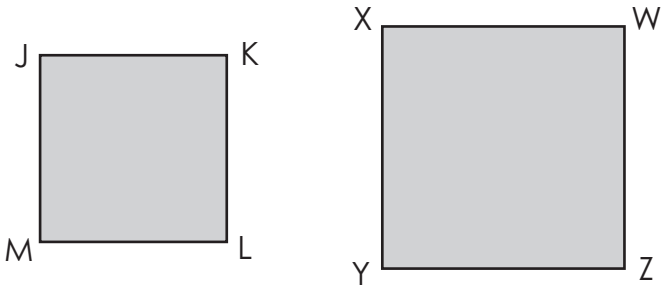
   D. $\frac{3^{12}}{3^4}$

   E. $\frac{3^{11}}{3^4}$

8.

This item cannot be rendered as a paper/pencil item.

9. Two quadrilaterals are shown.



Brian uses two transformations to show that quadrilateral JKLM is similar to quadrilateral WXYZ.

Which transformations did Brian use?

A. rotation and dilation

B. dilation and reflection

C. dilation and translation

D. reflection and translation

10.

This item cannot be rendered as a paper/pencil item.

11.

This item cannot be rendered as a paper/pencil item.

12. A sequence of transformations is applied to $\triangle CDE$ to create $\triangle C'D'E'$.

    In the **Answer Document**, select all the sequences of transformations that could be applied to $\triangle CDE$ so that $\triangle CDE \cong \triangle C'D'E'$.

    A. a clockwise rotation of 90 degrees and then a dilation by a scale factor of 2
    B. a dilation by a scale factor of 2 and then a reflection across the *y*-axis
    C. a clockwise rotation of 90 degrees and then a reflection across the *y*-axis
    D. a translation 5 units down and then a dilation by a scale factor of 2
    E. a translation 5 units down and then a clockwise rotation of 90 degrees
    F. a reflection across the *y*-axis and then a translation 5 units down

13.

This item cannot be rendered as a paper/pencil item.

14.

This item cannot be rendered as a paper/pencil item.