



Interim Assessment 2

Mathematics, Grade 8

Student: _____

Teacher: _____

School: _____

Mathematics

Assessment 2

DIRECTIONS

In this assessment you will answer a total of 28 questions, including 4 constructed-response questions. Mark all of your answers to the questions on the answer sheet provided. You may use this test booklet to work out the questions, but remember to mark all of your answers on the answer sheet. For constructed-response questions, record your answers directly on the page in the test booklet.

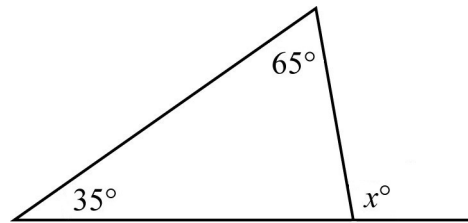
You may not use a calculator on this assessment.



1. What value of x satisfies the linear equation $6(2 + 4x) = 13$?

- A. $\frac{1}{24}$
- B. $\frac{1}{4}$
- C. $\frac{13}{36}$
- D. $\frac{5}{4}$

2. What is the value of x in the triangle shown below?



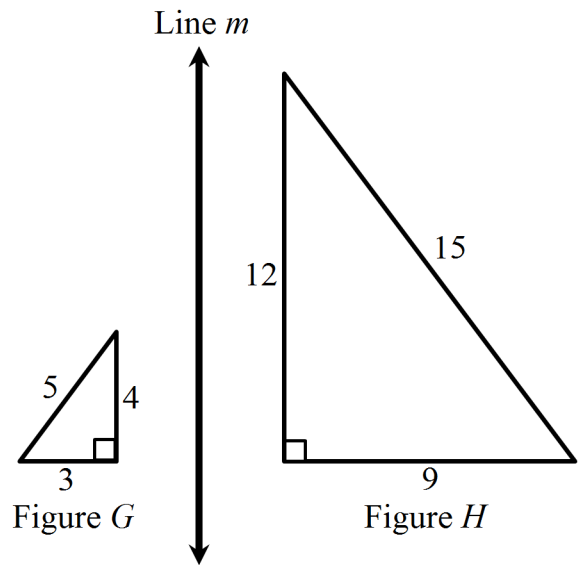
- A. 30
- B. 50
- C. 80
- D. 100

3. Simplify.

$$\frac{4.6 \times 10^7}{2.3 \times 10^5}$$

- A. 2.0×10^2
- B. 2.0×10^{12}
- C. 2.3×10^2
- D. 6.9×10^{12}

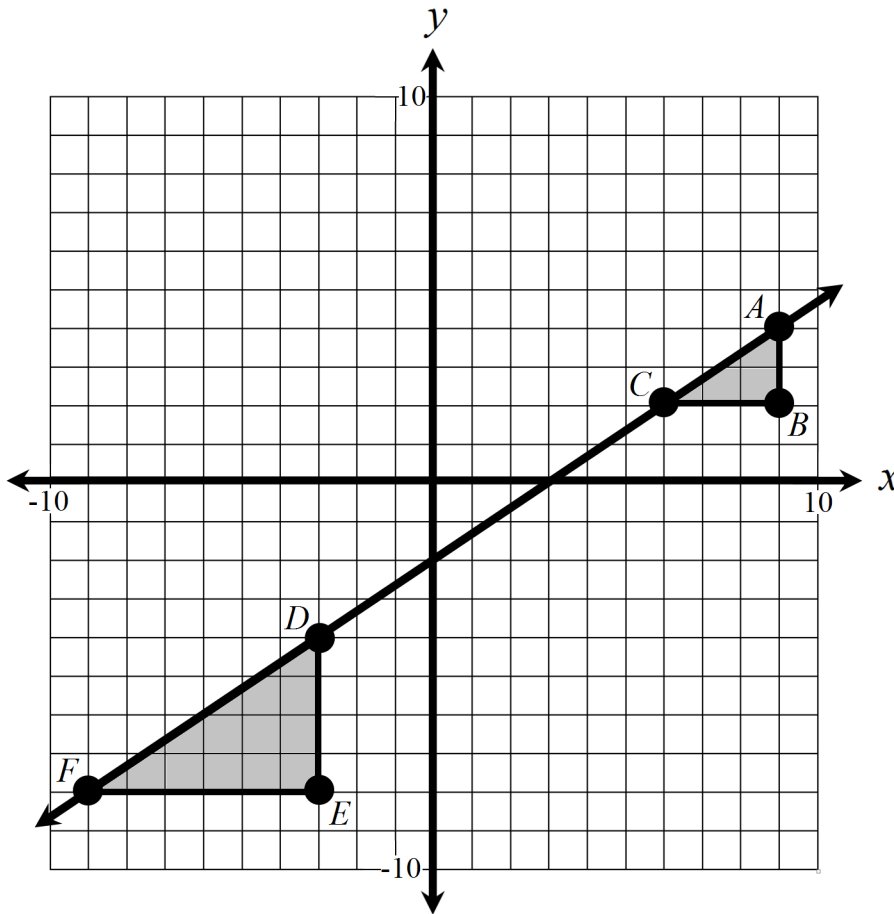
4. Use the diagram to answer the question.



Which statement **best** describes the relationship between figure *G* and figure *H*?

- A. The two figures are not similar because figure *G* was dilated by a scale factor of 3 to produce figure *H*.
- B. The two figures are similar because figure *G* was dilated by a scale factor of $\frac{1}{3}$ and then reflected over line *m* to produce figure *H*.
- C. The two figures are similar because figure *G* was dilated by a scale factor of 3 and then reflected over line *m* to produce figure *H*.
- D. The two figures are similar because figure *G* was dilated by a scale factor of 3 and then translated to the right to produce figure *H*.

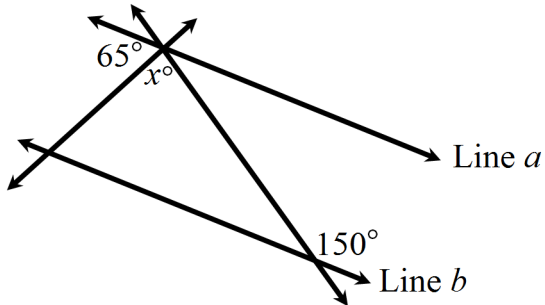
5. The graph below shows triangle ABC and triangle DEF .



Which statement about the slopes of \overline{AC} and \overline{DF} is true?

- A. The slope of \overline{DF} is twice the slope of \overline{AC} because the length of \overline{DF} is twice the length of \overline{AC} .
- B. The slope of \overline{DF} is the same as the slope of \overline{AC} because triangle ABC is similar to triangle DEF .
- C. The slope of \overline{DF} is 4 times the slope of \overline{AC} because the area of triangle DEF is 4 times the area of triangle ABC .
- D. The slope of \overline{DF} is twice the slope of \overline{AC} because the difference between the lengths of the legs of triangle ABC is 1, and the difference between the lengths of the legs of triangle DEF is 2.

6. Lines a and b are parallel in the diagram below.



What is the measure, in degrees, of x ?

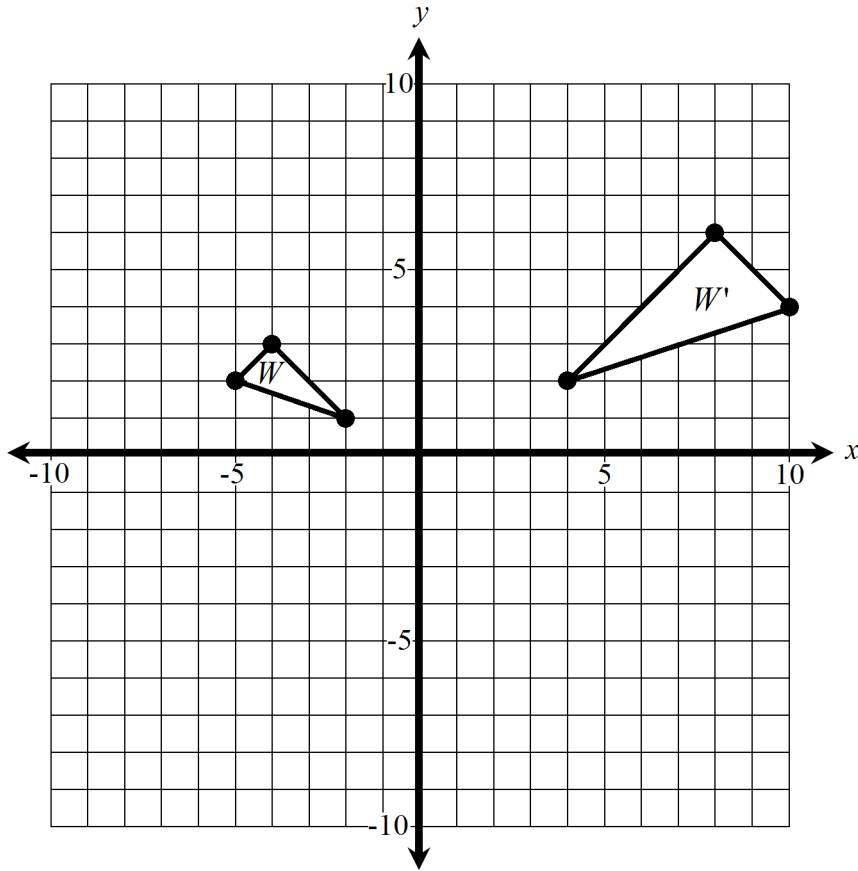
- A. 30
- B. 35
- C. 85
- D. 95

7. Solve the equation below for p .

$$-\frac{1}{2}(p + 2) = -3 - p$$

- A. $p = -10$
- B. $p = -4$
- C. $p = 2\frac{2}{3}$
- D. $p = 4$

8. Shape W and shape W' are similar figures.



Which statement describes the transformation of shape W to shape W' ?

- A. Shape W is reflected over the y -axis and dilated from the origin by a factor of 2.
- B. Shape W is reflected over the x -axis and dilated from the origin by a factor of 2.
- C. Shape W is reflected over the x -axis and dilated from the origin by a factor of $\frac{1}{2}$.
- D. Shape W is reflected over the y -axis and dilated from the origin by a factor of $\frac{1}{2}$.

9. The table and equation below show the proportional relationship between time, in seconds, x , and distance traveled, in feet, y , for two remote-control cars.

Car 1

x	y
15	75
17	85
21	105

Car 2

$y = 10x$

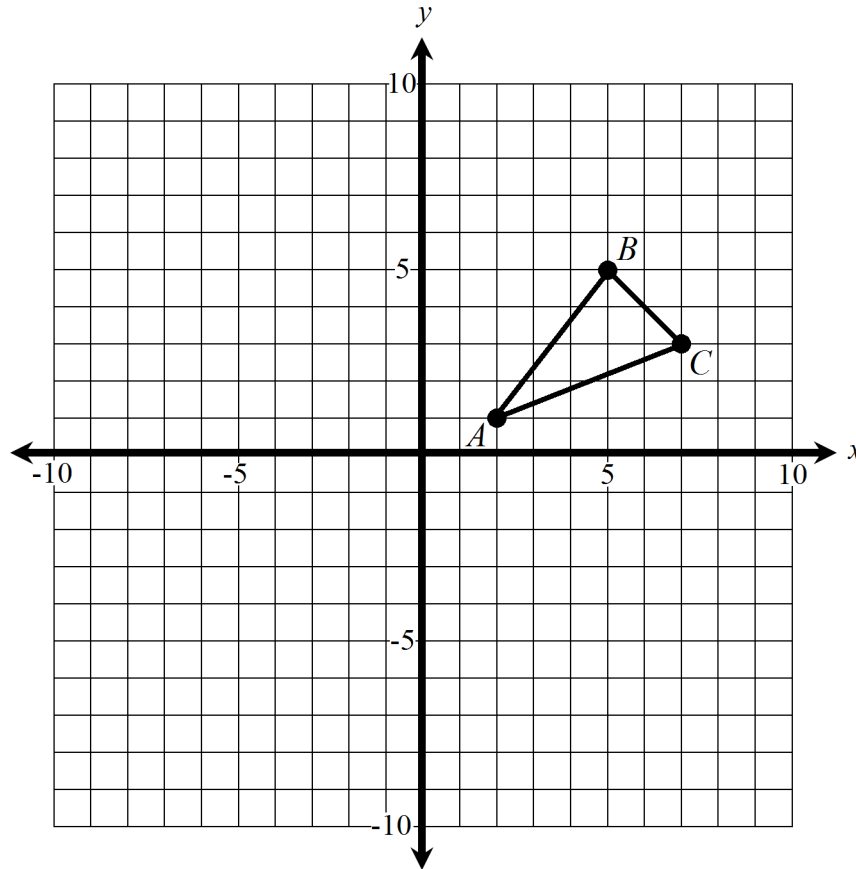
Which statement is true about the speeds of the two cars?

- A. Car 1 is traveling faster than Car 2.
- B. Car 2 is traveling faster than Car 1.
- C. The two cars are traveling at the same speed.
- D. The speeds cannot be compared because there is not enough information about Car 2.

10. The average height of a giraffe is about 2×10^1 feet. The average height of an ant is about 4×10^{-3} feet. Based on this information, about how many times taller is a giraffe than an ant?

- A. 500
- B. 5,000
- C. 20,000
- D. 80,000

11. Triangle ABC is located on the coordinate plane below. The shape is translated 3 units to the right and then reflected over the x -axis.



What are the new coordinates for point A ?

- A. $(-5, 1)$
- B. $(-1, -1)$
- C. $(2, -1)$
- D. $(5, -1)$

12. Which statement correctly describes the solution to the equation below?

$$-4(x + 2) + x = 3x - 8 - 5x$$

- A. There is no solution to this equation.
- B. There are infinitely many solutions to this equation.
- C. There is exactly one solution to this equation, and the solution is 0.
- D. There is exactly one solution to this equation, and the solution is -1.

13. Figure A and Figure B are shown below.

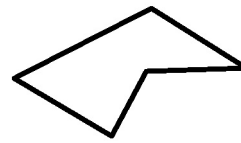


Figure A

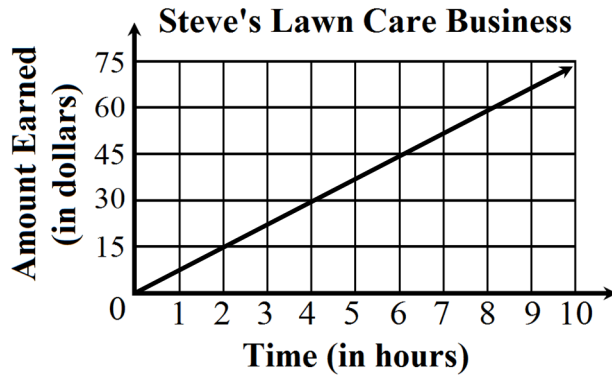


Figure B

Which sequence of transformations proves that Figure A is similar to Figure B?

- A. Figure A is rotated 90° clockwise about its center, dilated by a scale factor of 2 from its center, and translated to produce Figure B.
- B. Figure A is rotated 90° clockwise about its center, dilated by a scale factor of $\frac{1}{2}$ from its center, and translated to produce Figure B.
- C. Figure A is rotated 90° counterclockwise about its center, dilated by a scale factor of 2 from its center, and translated to produce Figure B.
- D. Figure A is rotated 90° counterclockwise about its center, dilated by a scale factor of $\frac{1}{2}$ from its center, and translated to produce Figure B.

14. Steve made the graph below to show information about his summer lawn care business.



Which statement describes the slope of the line?

- A. Steve earns \$7.50 per hour.
- B. Steve earns \$15.00 per hour.
- C. Steve works a maximum of 7.5 hours at a time.
- D. Steve works a maximum of 10 hours at a time.

15. Jim is making a solution in science class. Jim uses 5×10^{-3} liters of dye. He uses 9×10^{-1} liters of saline.

Which statement correctly compares these measurements?

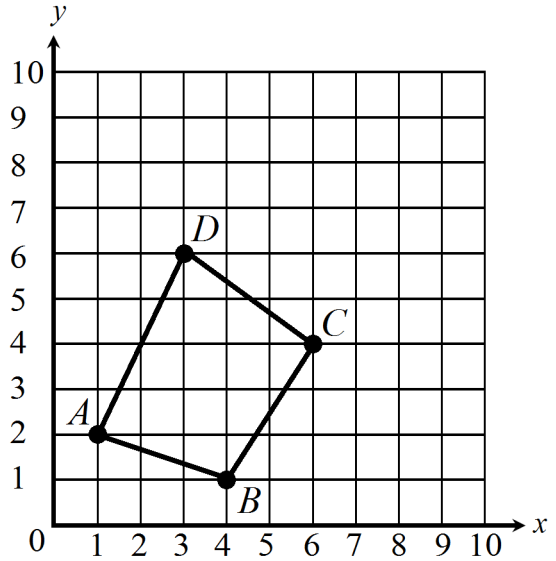
- A. Jim uses about $\frac{1}{200}$ as much dye as saline.
- B. Jim uses about $\frac{1}{100}$ as much dye as saline.
- C. Jim uses about 100 times as much dye as saline.
- D. Jim uses about 200 times as much dye as saline.

16. Emaline solved a linear equation and found that it had an infinite number of solutions.

Which could have been the final line of her work?

- A. $x = \frac{1}{x}$
- B. $x = 7$
- C. $x = x$
- D. $7 = 6$

17. Quadrilateral $ABCD$ is dilated by a scale factor of 2 from the origin.



What will be the coordinates of point D after the dilation?

- A. (3, 12)
- B. (5, 8)
- C. (6, 6)
- D. (6, 12)

18. The populations of the two towns that make up Providence Township are listed in the table below.

Hopedale	6.596×10^4
Faithton	2.43×10^3

How many more people live in Hopedale than in Faithton?

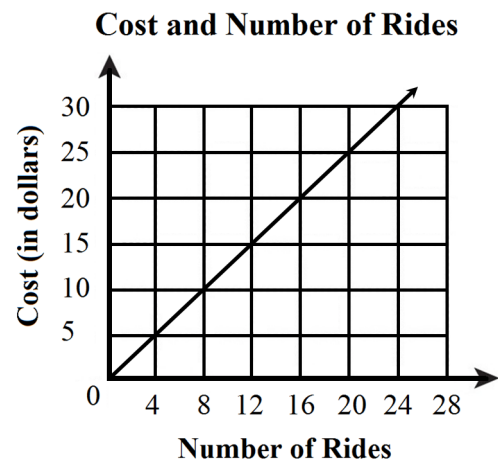
- A. 4.166×10^1
- B. 4.166×10^4
- C. 6.353×10^1
- D. 6.353×10^4

19. Two carnivals are coming to a town.

Carnival P charges y dollars to go on x rides. The cost for going on rides at Carnival P is represented as an equation.

$$y = 2.5x$$

The cost for going on rides at Carnival Q is represented as a graph.



Which statement is true?

- A. The cost of 1 ride at Carnival P is twice the cost of 1 ride at Carnival Q.
- B. The cost of 4 rides at Carnival P is half the cost of 4 rides at Carnival Q.
- C. The cost of 1 ride at Carnival P is \$1.70 more than the cost of 1 ride at Carnival Q.
- D. The cost of 4 rides at Carnival P is \$3.40 less than the cost of 4 rides at Carnival Q.

Multiple-Select Directions

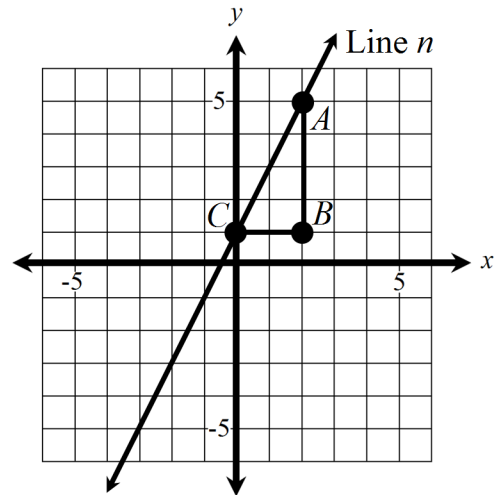
For each multiple-select question that follows, there will be more than one correct answer. Record your answers on the answer sheet provided.

20. Which equations have no solution?

Select **all** that apply.

- A. $-x + 3 = 2x + 3$
- B. $8 = 2(x + 4) - 2x$
- C. $-5x - 2x = -7x + 1$
- D. $2x - 3 = 5x - 3 - 3x$
- E. $4x - x + 6 = 2(x + 1) + x$

21. Use the graph below to answer the question.

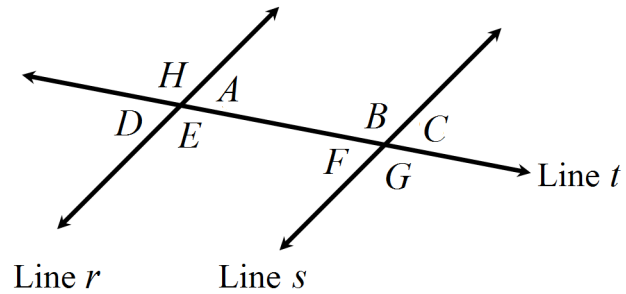


Which statements about line n are true?

Select **all** that apply.

- A. The slope of line n is $\frac{1}{2}$.
- B. The slope of line n is 2.
- C. The slope of line n is equal to $\frac{AB}{AC}$.
- D. The slope of line n is equal to $\frac{AB}{BC}$.
- E. The slope of line n is equal to $\frac{BC}{AB}$.

22. Parallel lines r and s are cut by transversal line t .



Which angles have a measure that is congruent to the measure of $\angle H$?

Select **all** that apply.

- A. $\angle A$
- B. $\angle B$
- C. $\angle C$
- D. $\angle D$
- E. $\angle E$
- F. $\angle F$
- G. $\angle G$

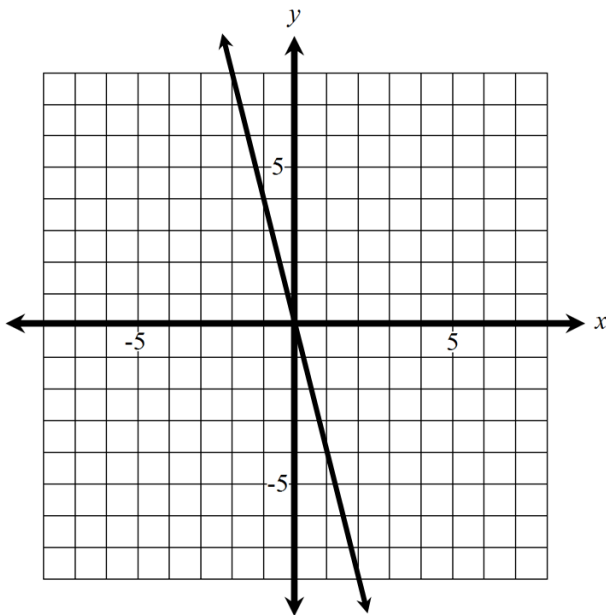
Short-Answer Directions

For each short-answer question that follows,
write your answer on the answer sheet provided.

- 23.** Solve the equation below for x .

$$27 = -0.5(8x - 6)$$

-
- 24.** Write the equation of the line below in slope-intercept form.



Constructed-Response Directions

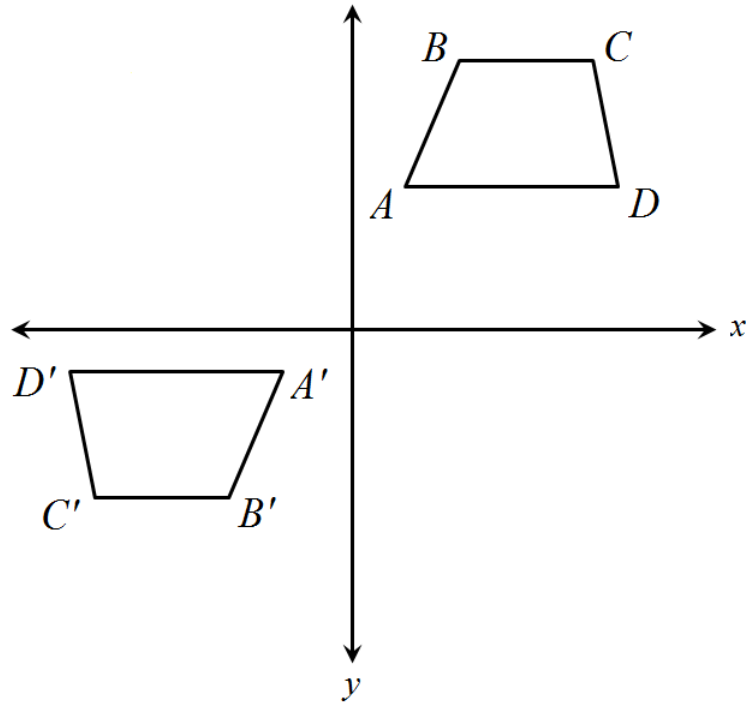
For each constructed-response question that follows, write your answer in the space provided in your test booklet.

- 25.** UV rays have a wavelength of 4.0×10^{-7} meters and microwave rays have a wavelength of 0.0085 meters. About how many times longer are microwave rays than UV rays? Justify your answer.

- 26.** Dierdre says that the solution to the equation $\frac{1}{2}(4x + 6) - 8 = -3x + 5(x - 2)$ is $x = 0$. Is Dierdre correct?
- If Dierdre is correct, explain how you know.
 - If Dierdre is not correct, describe the solution to the equation.

Show your work or explain all the steps you used to determine your answer.

27. Trapezoid $ABCD$ underwent a sequence of reflections to create trapezoid $A'B'C'D'$, as shown in the figure below.



- a. Jerry claims that trapezoid $ABCD$ and trapezoid $A'B'C'D'$ have the same area. Is Jerry's claim correct? Justify your answer.
- b. The measure of $\angle A$ is 71° . What is the measure of $\angle B'$? Explain your reasoning.

- 28.** Point A has coordinates $(-5, 3)$, point B has coordinates $(-2, 1)$, and point C has coordinates $(6, -3)$. Determine whether there is a line that passes through points A , B , and C . If there is, then write the equation of the line in slope-intercept form. If no such line exists, then explain how you know.