

Lesson 5 Practice Problems

1. A circle with an area of 8π square centimeters is dilated so that its image has an area of 32π square centimeters. What is the scale factor of the dilation?
 - A. 2
 - B. 4
 - C. 8
 - D. 16

2. A trapezoid has an area of 100 square units. What scale factor would be required to dilate the trapezoid to have each area?
 - a. 6400 square units

 - b. 900 square units

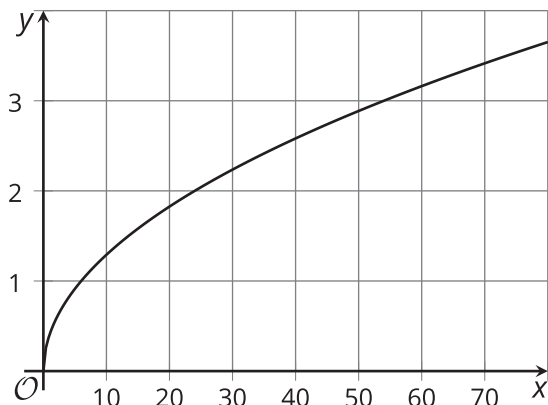
 - c. 100 square units

 - d. 25 square units

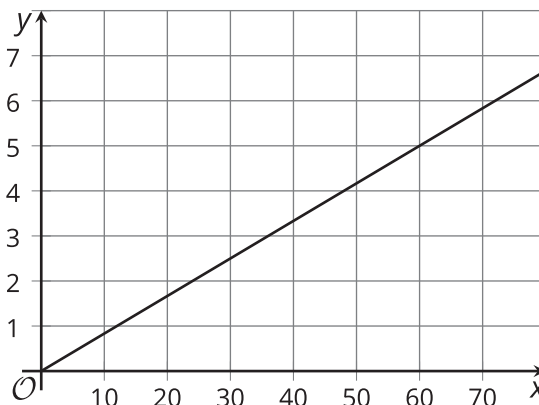
 - e. 4 square units

3. A triangle has an area of 6 square inches and a perimeter of 12 inches. Suppose it is dilated by some scale factor, and the area and perimeter of the image are calculated. Match each graph with the relationship it represents.

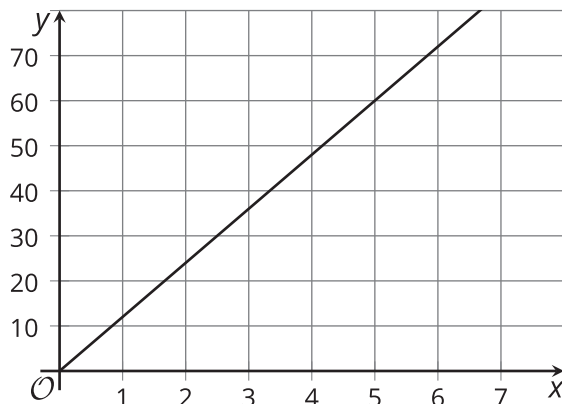
Graph A



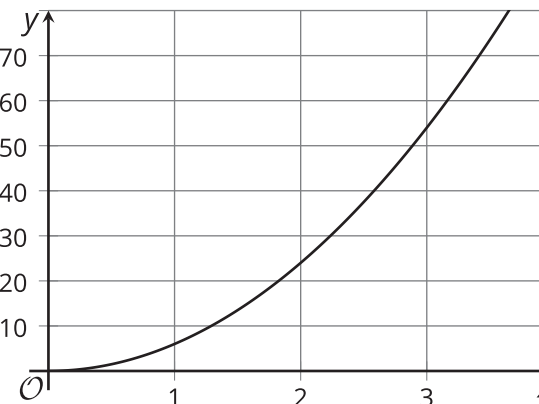
Graph B



Graph C



Graph D



- A. Graph A
- B. Graph B
- C. Graph C
- D. Graph D

- 1. scale factor is the x -value; perimeter is the y -value
- 2. scale factor is the x -value; area is the y -value
- 3. perimeter is the x -value; scale factor is the y -value
- 4. area is the x -value; scale factor is the y -value

4. A polygon with area 10 square units is dilated by a scale factor of k . Find the area of the image for each value of k .

a. $k = 4$

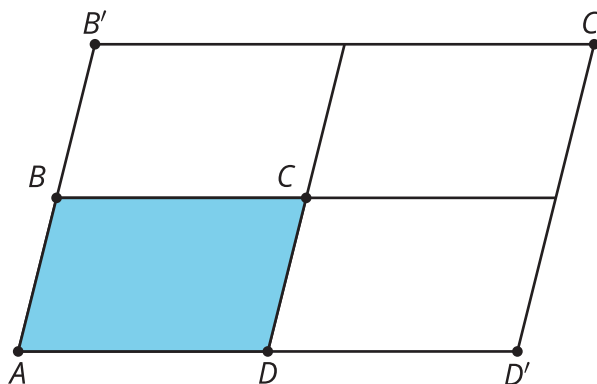
b. $k = 1.5$

c. $k = 1$

d. $k = \frac{1}{3}$

(From Unit 5, Lesson 4.)

5. Parallelogram $AB'C'D'$ was obtained by dilating parallelogram $ABCD$ using A as the center of dilation.



a. What was the scale factor of the dilation?

b. How many congruent copies of $ABCD$ have we fit inside $AB'C'D'$?

c. How does the area of parallelogram $AB'C'D'$ compare to parallelogram $ABCD$?

d. If parallelogram $ABCD$ has area 12 square units, what is the area of parallelogram $AB'C'D'$?

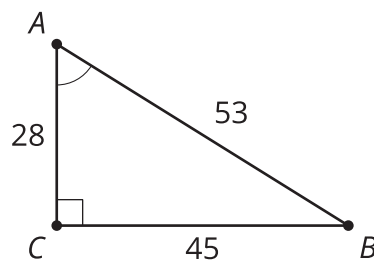
(From Unit 5, Lesson 4.)

6. Select **all** solids whose cross sections are dilations of some two-dimensional shape using a point directly above the shape as a center and scale factors ranging from 0 to 1.

- A. cylinder
- B. cube
- C. triangular prism
- D. cone
- E. triangular pyramid

(From Unit 5, Lesson 3.)

7. Select **all** expressions which give the measure of angle A .



- A. $\arccos\left(\frac{28}{53}\right)$
- B. $\arccos\left(\frac{45}{53}\right)$
- C. $\arcsin\left(\frac{28}{53}\right)$
- D. $\arcsin\left(\frac{45}{53}\right)$
- E. $\arctan\left(\frac{28}{45}\right)$
- F. $\arctan\left(\frac{45}{28}\right)$

(From Unit 4, Lesson 9.)