

Lesson 4 Practice Problems

1. A rectangle with area 12 square units is dilated by a scale factor of k . Find the area of the image for each given value of k .

a. $k = 2$

b. $k = 5$

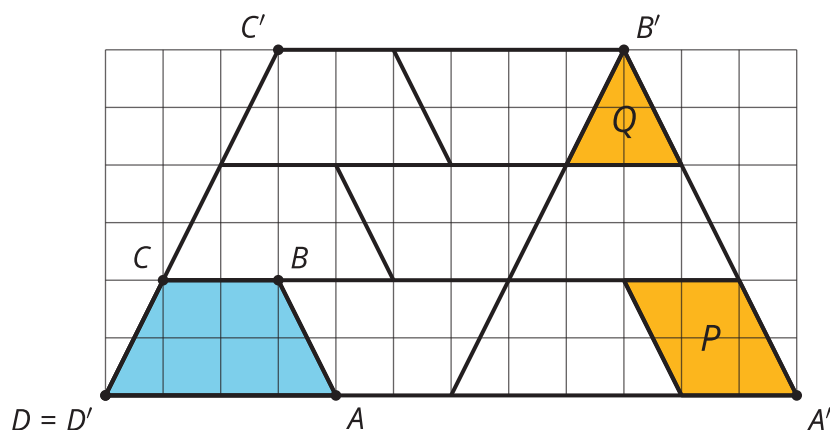
c. $k = 1$

d. $k = \frac{1}{4}$

e. $k = 1.2$

2. The area of a circle of radius 1 is π units squared. Use scaling to explain why the area of a circle of radius r is πr^2 units squared.

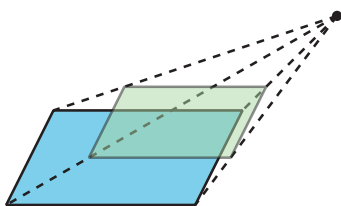
3. Trapezoid $A'B'C'D$ was created by dilating trapezoid $ABCD$ using D as the center of dilation.



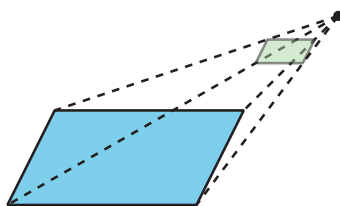
- What was the scale factor of the dilation?
- Based on the scale factor, how many copies of $ABCD$, including the original, should fit inside $A'B'C'D$?
- How can you see your answer to these questions in the diagram?

4. Each image shows a quadrilateral in a plane. The quadrilateral has been dilated using a center above the plane and a scale factor between 0 and 1. Estimate the scale factor that was used for each dilation.

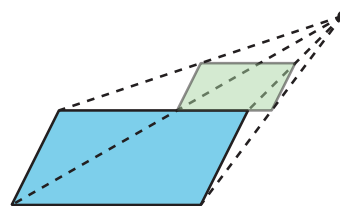
Dilation A



Dilation B



Dilation C



(From Unit 5, Lesson 3.)

5. Select the solid 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. cone
- B. cube
- C. cylinder
- D. triangular prism

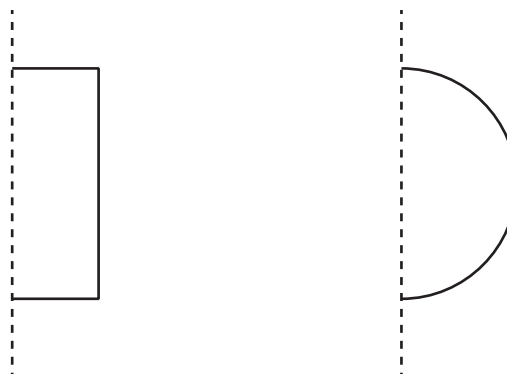
(From Unit 5, Lesson 3.)

6. Select **all** figures for which at least one cross section is a circle.

- A. triangular pyramid
- B. square pyramid
- C. rectangular prism
- D. cube
- E. cone
- F. cylinder
- G. sphere

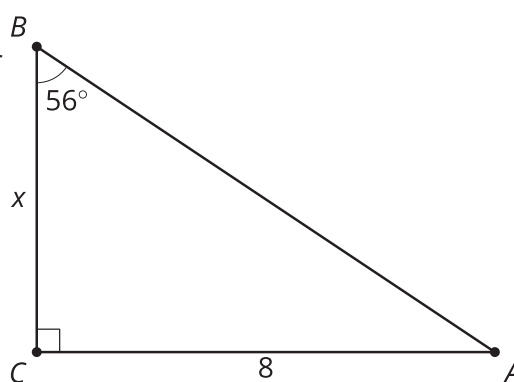
(From Unit 5, Lesson 2.)

7. If the two-dimensional figures are rotated around the vertical axes of rotation shown, what solids are formed?



(From Unit 5, Lesson 1.)

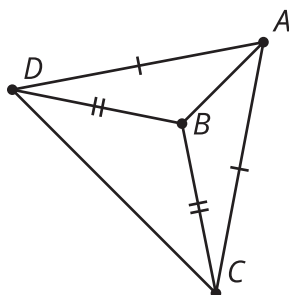
8. Tyler and Jada wish to find the value of x , the length of side BC in this triangle. Tyler decides to set up the equation $\tan(56) = \frac{8}{x}$. Jada says she prefers an equation that has x in the numerator. What is an equation she could use instead?



(From Unit 4, Lesson 8.)

9. Triangles ACD and BCD are isosceles. Angle DBC has a measure of 110 degrees and angle BDA has a measure of 22 degrees. Find the measure of angle BAC .

$$\overline{AD} \cong \overline{AC} \text{ and } \overline{BD} \cong \overline{BC}$$



(From Unit 2, Lesson 6.)