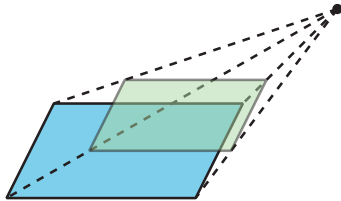


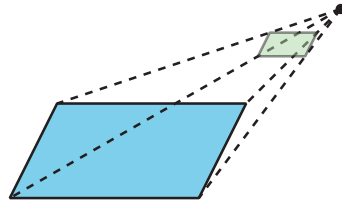
Lesson 3 Practice Problems

1. 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. Match the dilation with the scale factor used.

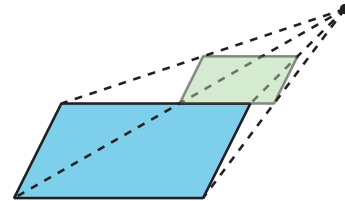
Dilation A



Dilation B



Dilation C



A. Dilation A

1. $\frac{1}{4}$

B. Dilation B

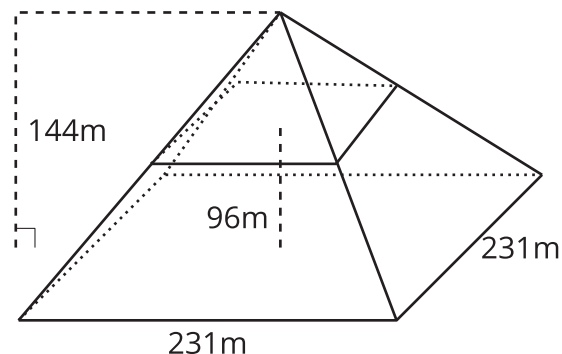
2. $\frac{1}{2}$

C. Dilation C

3. $\frac{3}{4}$

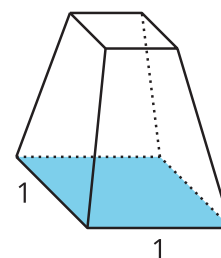
2. The Pyramid of Khufu in Giza, Egypt was the world's tallest free-standing structure for more than 3,500 years. Its original height was about 144 meters. Its base is approximately a square with a side length of 231 meters.

The diagram shows a cross section created by dilating the base using the top of the pyramid as the center of dilation. The cross section is at a height of 96 meters.



- What scale factor was used to create the cross section?
- What are the dimensions of the cross section?

3. The horizontal cross sections of this figure are dilations of the bottom rectangle using a point above the rectangle as a center. What scale factors of dilation are represented in the figure's cross sections?



- A. scale factors between 0 and $\frac{1}{2}$
 - B. scale factors between 0 and 1
 - C. scale factors between $\frac{1}{4}$ and $\frac{3}{4}$
 - D. scale factors between $\frac{1}{2}$ and 1
4. Imagine an upright cone with its base resting on your horizontal desk. Match each plane with the image of the cross section formed by intersecting the plane with the cone.

Figure 1

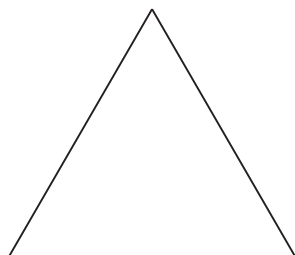


Figure 2

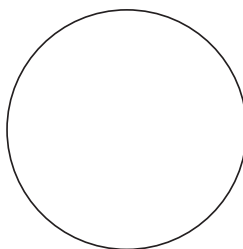
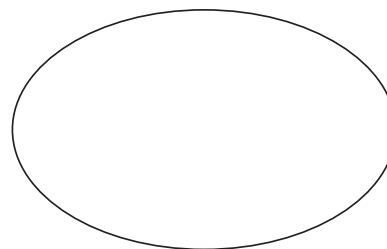


Figure 3



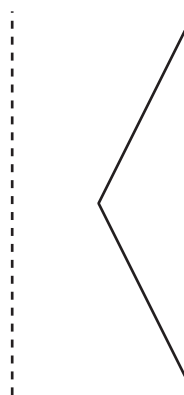
- | | |
|---|---|
| <ul style="list-style-type: none"> A. horizontal B. vertical, through cone's topmost point C. diagonal | <ul style="list-style-type: none"> 1. Figure 1 2. Figure 2 3. Figure 3 |
|---|---|

(From Unit 5, Lesson 2.)

5. What is the shape of the cross section formed by intersecting a cube with a vertical plane that passes through opposite edges of the cube? Explain how you know.

(From Unit 5, Lesson 2.)

6. Sketch the solid of rotation formed by rotating the given two-dimensional figure using the dashed vertical line as an axis of rotation.

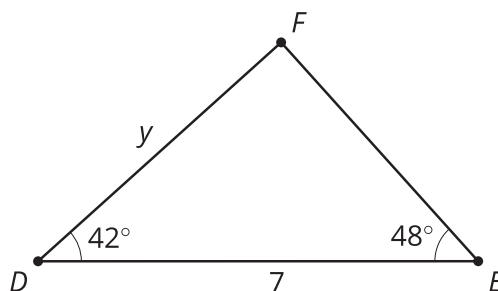


(From Unit 5, Lesson 1.)

7. *Technology required.* A rope with a length of 4 meters is tied from a stake in the ground to the top of a tent. It forms a 20 degree angle with the ground. How tall is the tent?

(From Unit 4, Lesson 7.)

8. *Technology required.* What is the value of y ?



(From Unit 4, Lesson 6.)