### 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 $k$.
	1. $k=2$
	2. $k=5$
	3. $k=1$
	4. $k=\frac{1}{4}$
	5. $k=1.2$
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.
* 
	1. What was the scale factor of the dilation?
	2. Based on the scale factor, how many copies of $ABCD$, including the original, should fit inside $A^{′}B^{′}C^{′}D$?
	3. How can you see your answer to these questions in the diagram?
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. Estimate the scale factor that was used for each dilation.
* Dilation A
* 
* Dilation B
* 
* Dilation C
* 
* (From Unit 5, Lesson 3.)
1. 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.
	1. cone
	2. cube
	3. cylinder
	4. triangular prism
* (From Unit 5, Lesson 3.)
1. Select **all** figures for which at least one cross section is a circle.
	1. triangular pyramid
	2. square pyramid
	3. rectangular prism
	4. cube
	5. cone
	6. cylinder
	7. sphere
* (From Unit 5, Lesson 2.)
1. If the two-dimensional figures are rotated around the vertical axes of rotation shown, what solids are formed?
* 
* 
* (From Unit 5, Lesson 1.)
1. 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 $tan\left(56\right)=\frac{8}{x}$. 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.)
1. 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 $BAC$.
* $\overset{¯}{AD}≅\overset{¯}{AC}$ and $\overset{¯}{BD}≅\overset{¯}{BC}$
* 
* (From Unit 2, Lesson 6.)



© CC BY 2019 by Illustrative Mathematics®