### Lesson 7 Practice Problems

1. A solid with volume 8 cubic units is dilated by a scale factor of $k$ to obtain a solid with volume $V$ cubic units. Find the value of $k$ which results in an image with each given volume.
	1. 216 cubic units
	2. 1 cubic unit
	3. 1,000 cubic units
2. A solid has volume 7 cubic units. The equation $k=\sqrt[3]{\frac{V}{7}}$ represents the scale factor of $k$ by which the solid must be dilated to obtain an image with volume $V$ cubic units. Select **all** points which are on the graph representing this equation.
	1. $\left(0,0\right)$
	2. $\left(1,1\right)$
	3. $\left(1,7\right)$
	4. $\left(7,1\right)$
	5. $\left(14,2\right)$
	6. $\left(49,2\right)$
	7. $\left(56,2\right)$
	8. $\left(27,3\right)$
3. A solid with surface area 8 square units is dilated by a scale factor of $k$ to obtain a solid with surface area $A$ square units. Find the value of $k$ which leads to an image with each given surface area.
	1. 512 square units
	2. $\frac{1}{2}$ square unit
	3. 8 square units
4. It takes $\frac{1}{8}$ of a roll of wrapping paper to completely cover all 6 sides of a small box that is shaped like a rectangular prism. The box has a volume of 10 cubic inches. Suppose the dimensions of the box are tripled.
	1. How many rolls of wrapping paper will it take to cover all 6 sides of the new box?
	2. What is the volume of the new box?
* (From Unit 5, Lesson 6.)
1. A solid with volume 8 cubic units is dilated by a scale factor of $k$. Find the volume of the image for each given value of $k$.
	1. $k=\frac{1}{2}$
	2. $k=0.6$
	3. $k=1$
	4. $k=1.5$
* (From Unit 5, Lesson 6.)
1. A figure has an area of 9 square units. The equation $y=\sqrt{\frac{x}{9}}$ represents the scale factor of $y$ by which the solid must be dilated to obtain an image with area of $x$ square units. Select **all** points which are on the graph representing this equation.
	1. $\left(0,0\right)$
	2. $\left(1,1\right)$
	3. $\left(1,3\right)$
	4. $\left(3,1\right)$
	5. $\left(9,1\right)$
	6. $\left(9,3\right)$
	7. $\left(18,2\right)$
	8. $\left(36,2\right)$
* (From Unit 5, Lesson 5.)
1. Noah edits the school newspaper. He is planning to print a photograph of a flyer for the upcoming school play. The original flyer has an area of 576 square inches. The picture Noah prints will be a dilation of the flyer using a scale factor of $\frac{1}{4}$. What will be the area of the picture of the flyer in the newspaper?
* (From Unit 5, Lesson 4.)
1. Angle $S$ is 90 degrees and angle $T$ is 45 degrees. Side $ST$ is 3 feet. How long is side $SU$?
* (From Unit 4, Lesson 6.)



© CC BY 2019 by Illustrative Mathematics®