

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.

a. 216 cubic units

b. 1 cubic unit

c. 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.

A. (0, 0)

B. (1, 1)

C. (1, 7)

D. (7, 1)

E. (14, 2)

F. (49, 2)

G. (56, 2)

H. (27, 3)

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.
- a. 512 square units
 - b. $\frac{1}{2}$ square unit
 - c. 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.
- a. How many rolls of wrapping paper will it take to cover all 6 sides of the new box?
 - b. What is the volume of the new box?

(From Unit 5, Lesson 6.)

5. 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 .

a. $k = \frac{1}{2}$

b. $k = 0.6$

c. $k = 1$

d. $k = 1.5$

(From Unit 5, Lesson 6.)

6. 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.

A. (0, 0)

B. (1, 1)

C. (1, 3)

D. (3, 1)

E. (9, 1)

F. (9, 3)

G. (18, 2)

H. (36, 2)

(From Unit 5, Lesson 5.)

7. 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.)

8. 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.)