**Module 11     Transformations of Shapes**
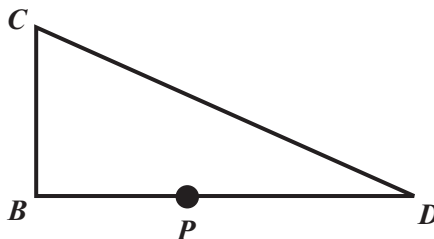**Lesson 3     Dilations**

**Set 1**

**1**   Perform a dilation of △*BCD* with center *P* and scale factor 1.5. Use a metric ruler to measure.
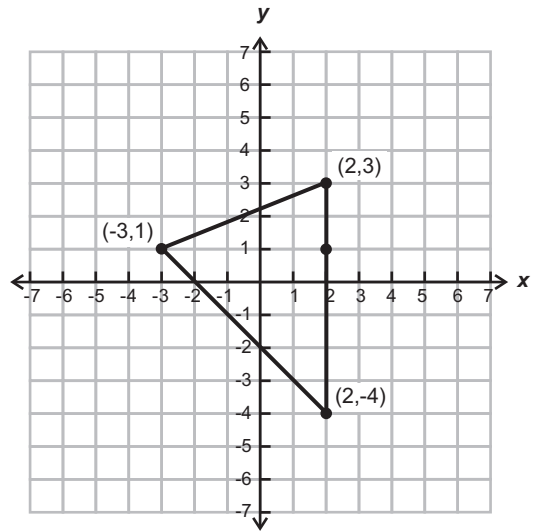
*C*

*B*          *P*          *D*

**2**   What is the ratio of the perimeter of an image with a dilation with scale factor *k* to the perimeter of the original figure? Explain.
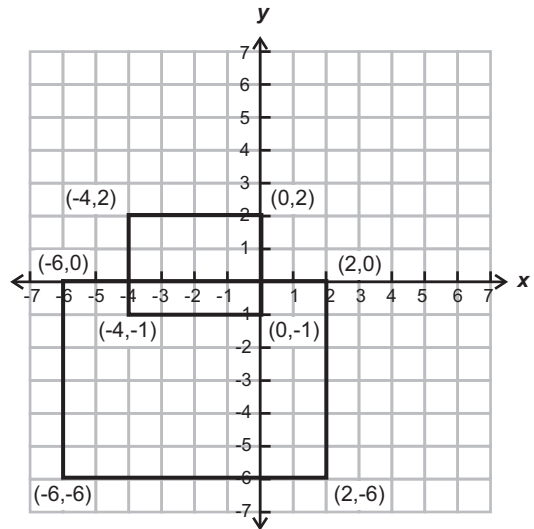
**1** Perform a dilation of the triangle with center (2, 1) and scale factor 2.



**2** The graph shows a rectangle and its image under a reduction. What is the center of dilation?
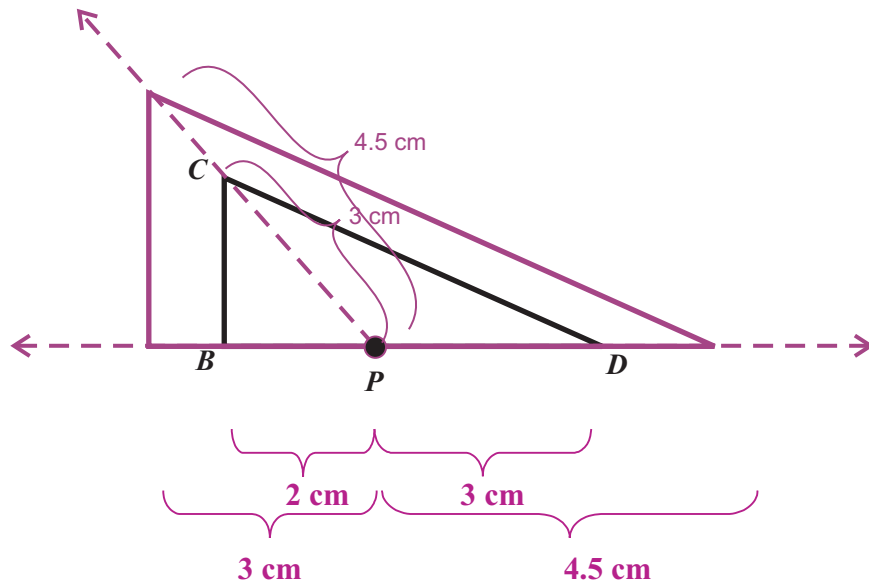
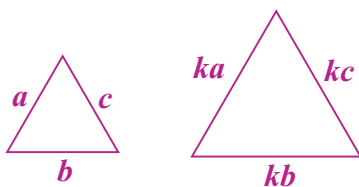**Module 11     Transformations of Shapes**
**Lesson 3      Dilations**

## Possible Answers

**Set 1**

**1.**

4.5 cm

*C*

3 cm

*B*      *P*      *D*

2 cm    3 cm

3 cm      4.5 cm

**2. Consider these two triangles.**

*a*   *c*

*ka*   *kc*

*b*

*kb*

$$P = a + b + c \qquad P' = ka + kb + kc$$
$$P' = k(a + b + c)$$
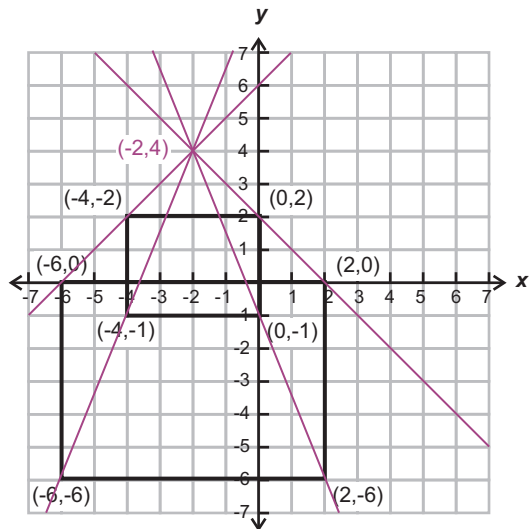$$P' = kP$$
$$\frac{P'}{P} = k$$

**The perimeter of a figure is the sum of all the lengths of its sides. The length of each side of the image is $k$ times the original length. So, the perimeter of the image is $k$ times the perimeter of the original. The ratio of the perimeter of the image to the original is $k$.**

**1.**
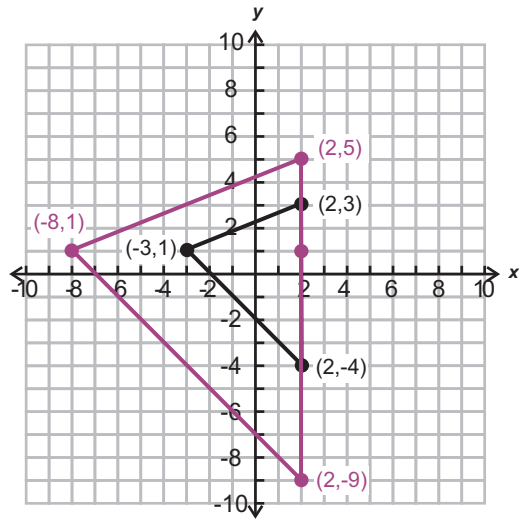


**2.**



**The center of the dilation is (-2, 4).**