8-10

Name _____ Date _____

Dilations (Pages 370–373)

The process of enlarging or reducing an image is called a **dilation**.

Working with Dilations	Since the dilated image has the same shape as the original, the two images are similar. The ratio of the dilated image to the original is called the **scale factor**.

EXAMPLE

A triangle has vertices $M(2,-2)$, $N(6,-2)$, and $P(2,4)$. Find the coordinates of the image for a dilation with a scale factor of $\frac{5}{2}$.

Multiply each coordinate in each ordered pair by $\frac{5}{2}$.

$M(2,-2) \rightarrow \left(2 \cdot \frac{5}{2}, -2 \cdot \frac{5}{2}\right) \rightarrow M'(5,-5)$

$N(6,-2) \rightarrow \left(6 \cdot \frac{5}{2}, -2 \cdot \frac{5}{2}\right) \rightarrow N'(15,-5)$

$P(2,4) \rightarrow \left(2 \cdot \frac{5}{2}, 4 \cdot \frac{5}{2}\right) \rightarrow P'(5,10)$

PRACTICE

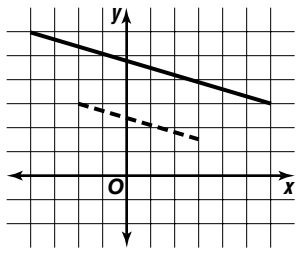
1. Find the coordinates of the image of point $C(12,4)$ for a dilation with a scale factor of $\frac{2}{3}$.

Triangle KLM has vertices K(−5, 15), L(−5, −10), and M(15, 20). Find the coordinates of its image for a dilation with each given scale factor.

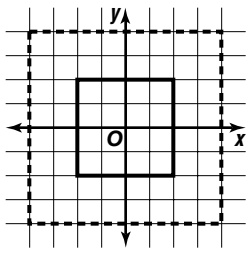
2. 3 **3.** $\frac{1}{5}$ **4.** $\frac{3}{5}$

In each figure, the dashed-lined figure is a dilation of the straight-lined figure. Find each scale factor.

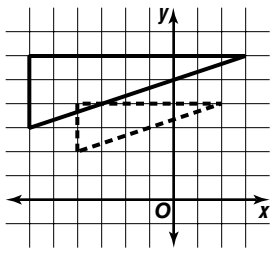
5.



6.



7.



8. **Standardized Test Practice** What are the coordinates of the image of point $Q(3,8)$ for a dilation with a scale factor of $\frac{1}{4}$?

A $Q'\left(\frac{3}{4}, 2\right)$ **B** $Q'(12, 32)$ **C** $Q'(3, 2)$ **D** $Q'\left(\frac{4}{3}, \frac{1}{2}\right)$

Answers: **1.** $C'\left(8, 2\frac{2}{3}\right)$ **2.** $K'(-15, 45)$, $L'(-15, -30)$, $M'(45, 60)$ **3.** $K'(-1, 3)$, $L'(-1, -2)$, $M'(3, 4)$ **4.** $K'(-3, 9)$, $L'(-3, -6)$, $M'(9, 12)$ **5.** $\frac{1}{2}$ **6.** 2 **7.** $\frac{2}{3}$ **8.** A