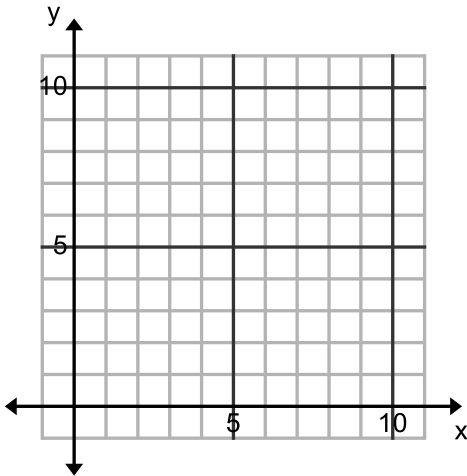# HW 8-4: Dilations

Find the coordinates of the vertices of each figure after a dilation with the given scale factor k. Then graph the original image and the dilation.
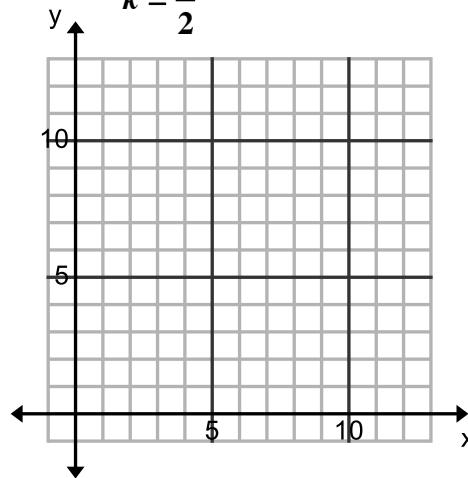
1. $C(1,4)$, $A(2,2)$, $T(5,5)$; $k = 2$

$C'($ $)$

$A'($ $)$

$T'($ $)$

2. $R(2,2)$, $S(2,8)$, $T(6,8)$, $U(6,2)$; $k = \dfrac{3}{2}$

$R'($ $)$

$S'($ $)$
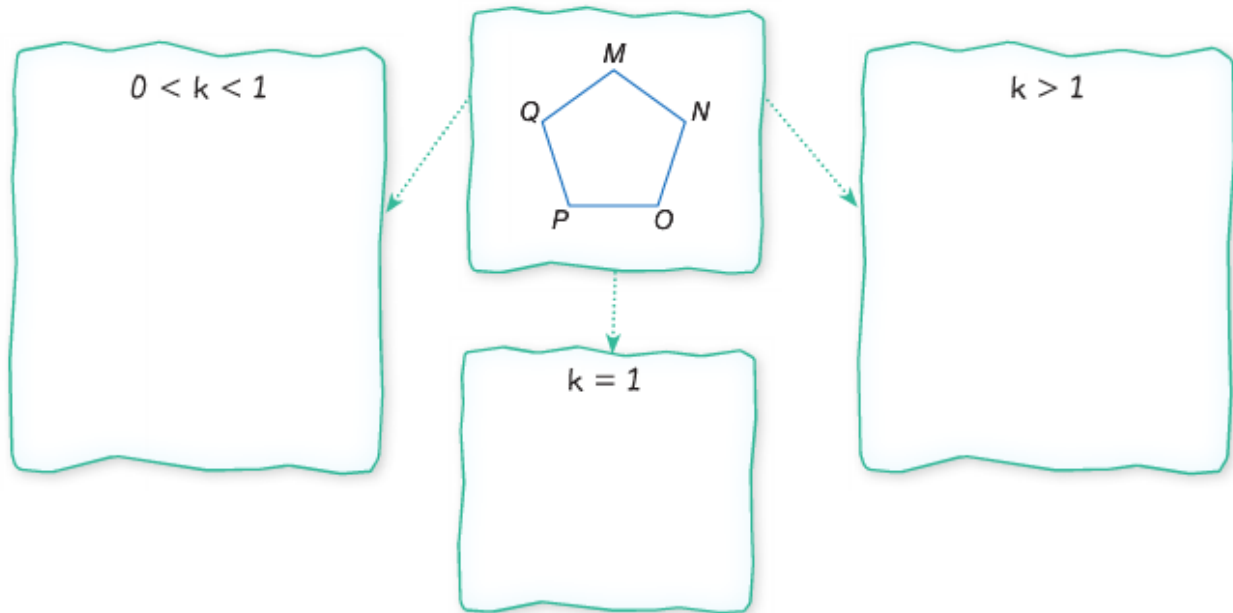
$T'($ $)$

$U'($ $)$

3. A graphic designer created a logo on 4×6 inch paper. In order to be placed on a business card, the logo needs to be 8×12 inches. What is the scale factor of the dilation?

4. Darian wants to build a regulation-size pool table that is 9 feet in length. The plans he ordered are 18 inches in width by 36 inches in length. What is the scale factor of the dilation he must use to build the regulation pool table?

5. In each part of the graph organizer, place the correct word to describe the image of pentagon *MNOPQ* after a dilation within the given parameters.

$0 < k < 1$

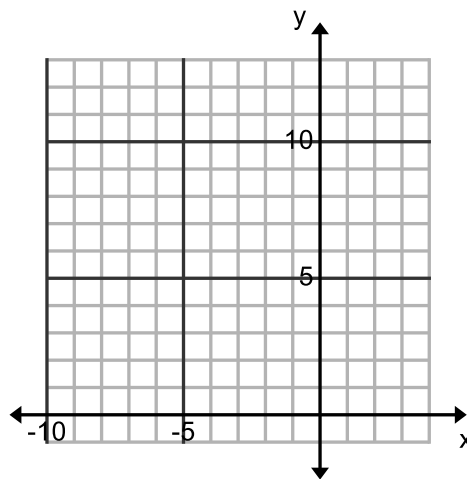$k > 1$

$k = 1$

| same size | enlargement | reduction |

6. Find the coordinates of the vertices of each figure after a dilation with the given scale factor k. Then graph the original image and the dilation.

$V(-3,4)$, $X(-2,0)$, $W(1,2)$; $k = 3$

$V'($ $)$
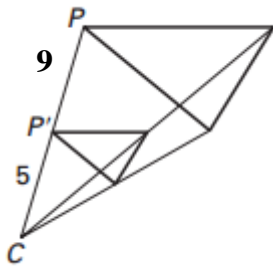
$X'($ $)$

$W'($ $)$

7. To place a picture in his class newsletter Joaquin will change the picture by a scale factor of 0.3. Find the dimensions of the reduced picture if the original is 15 centimeters wide and 10 centimeters high.

The figure is shown along with its image after a dilation. Point C is the center of dilation.
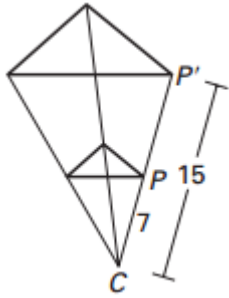
8.

a. Is the dilation an enlargement or reduction?
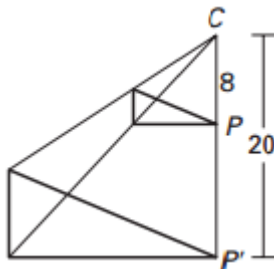
b. Identify the scale factor: $k = $ _____

9.

a. Is the dilation an enlargement or reduction?
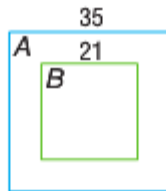
b. Identify the scale factor: $k = $ _____

10.

a. Is the dilation an enlargement or reduction?

b. Identify the scale factor: $k = $ _____

11. A triangle has vertices $A(3,4)$, $B(2,-1)$, and $C(-4,-5)$. After a dilation, $\triangle A'B'C'$ has vertices $A'(9,12)$, $B'(6,-3)$, and $C'(-12,-15)$. What is the scale factor of the dilation?
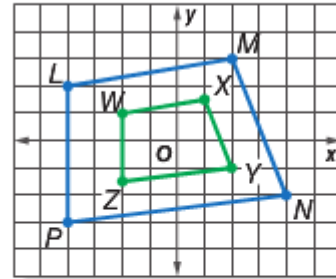
12. Square *B* is the result of a dilation of square *A*.

What scale factor was used to dilate square *A* to square *B*?

Ⓐ $\frac{1}{7}$ Ⓒ $\frac{5}{3}$

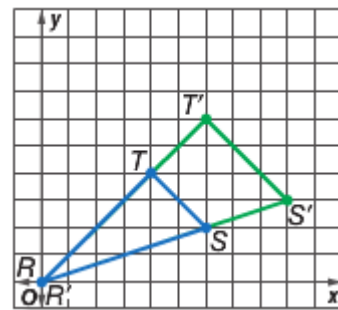Ⓑ $\frac{3}{5}$ Ⓓ 7

13. Quadrilateral *WXYZ* is the result of a dilation of quadrilateral *LMNP*.

Which number best represents the scale factor used to change quadrilateral *LMNP* into quadrilateral *WXYZ*?

Ⓕ 3   Ⓗ $\frac{1}{2}$

Ⓖ 2   Ⓘ $\frac{1}{3}$

14. What is the scale factor of the dilation shown?

15. A line segment has endpoints $Q(-5, -6)$ and $P(-5, 1)$. Which of the following figures is the image after a dilation?

Ⓐ $Q'(-5, 6), P'(-5, -1)$ Ⓒ $Q'(-10, -12), P'(-10, 2)$

Ⓑ $Q'(5, -6), P'(5, 1)$ Ⓓ $Q'(-6, -5), P'(1, -5)$