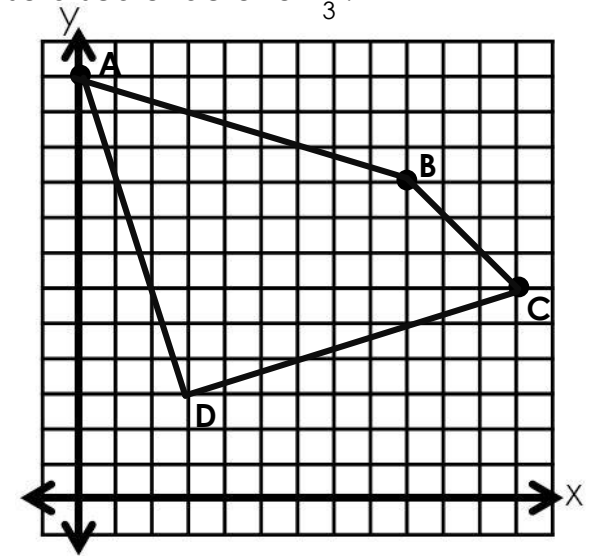


Dilations

Example 3:

Draw a dilation of quadrilateral ABCD with vertices A(0,12), B(9,9), C(12,6), D(3,3). Use a scale factor of $\frac{1}{3}$.



Coordinate notation for a dilation

$$(x, y) \rightarrow (\quad , \quad)$$

where k is the scale factor.

Reduction

Enlargement

What is a dilation?

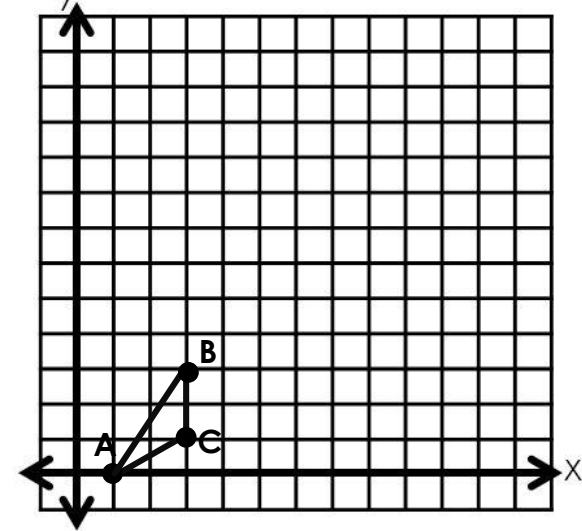
A **dilation** is a transformation that _____ or _____ a figure to create a similar figure.

In a dilation, the figure is enlarged or reduced to a fixed point called the **center of dilation**.

The **scale factor** of a dilation is the _____ of the side length of the image to the corresponding side length of the original figure. The corresponding sides are _____.

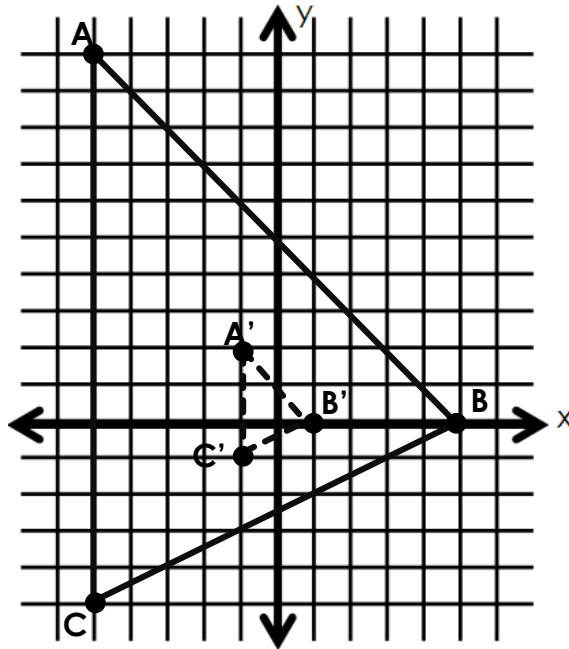
Example 1:

Draw a dilation of $\triangle ABC$ with vertices $A(1,0)$, $B(3,3)$, $C(3,1)$. Use a scale factor of 4.



Example 4:

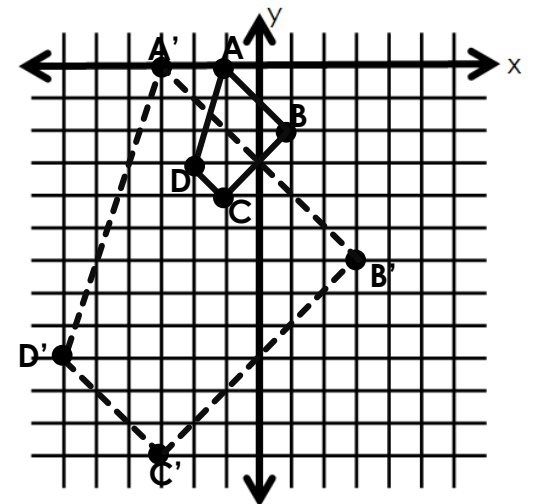
Find the scale factor of the dilation shown.



Reducing a figure

Example 2:

Find the scale factor of the dilation shown.



Enlarging a figure

Answer Key!

Example 3:

Draw a dilation of quadrilateral ABCD with vertices A(0,12), B(9,9), C(12,6), D(3,3). Use a scale factor of $\frac{1}{3}$.

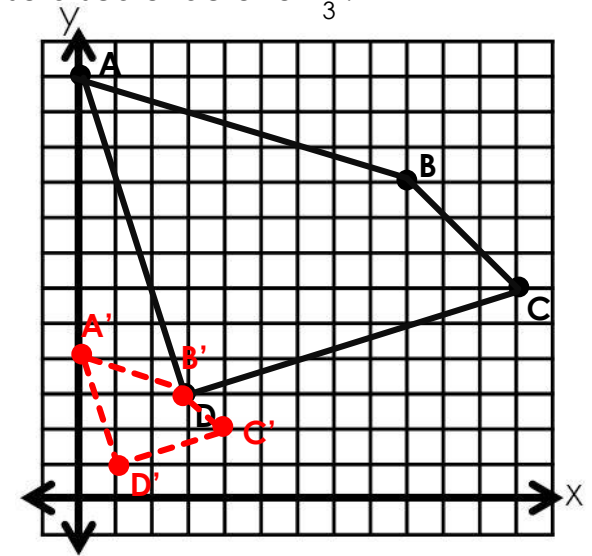
$$(x,y) \rightarrow \left(\frac{1}{3}x, \frac{1}{3}y\right)$$

$$A(0,12) \rightarrow A'(0,4)$$

$$B(9,9) \rightarrow B'(3,3)$$

$$C(12,6) \rightarrow C'(4,2)$$

$$D(3,3) \rightarrow D'(1,1)$$



Coordinate notation for a dilation

$$(x, y) \rightarrow (kx , ky)$$

where k is the scale factor.

Reduction

$$0 < k < 1$$

Enlargement

$$k > 1$$

What is a dilation?

Dilations

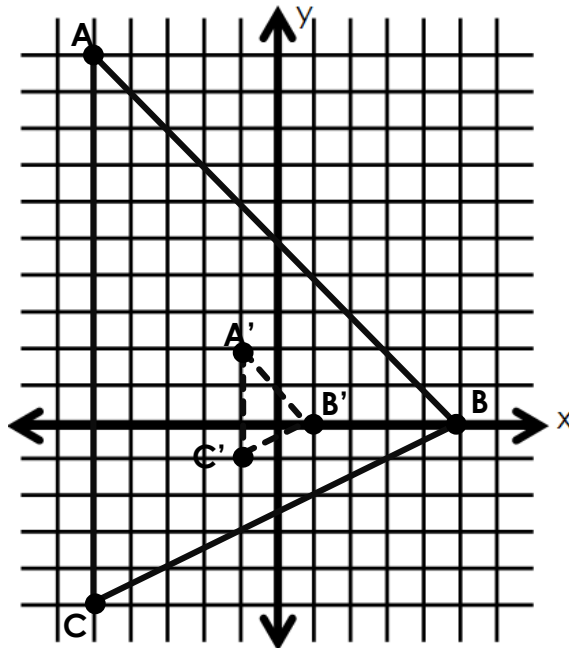
A **dilation** is a transformation that reduces or enlarges a figure to create a similar figure.

In a dilation, the figure is enlarged or reduced to a fixed point called the **center of dilation**.

The **scale factor** of a dilation is the ratio of the side length of the image to the corresponding side length of the original figure. The corresponding sides are proportional.

Example 4:

Find the scale factor of the dilation shown.



$$(x, y) \rightarrow (kx, ky)$$

$$A(-5, 10) \rightarrow A'(-1, 2)$$

$$B(5, 0) \rightarrow B'(1, 0)$$

$$C(-5, -5) \rightarrow C'(-1, -1)$$

$$\text{Scale Factor: } \frac{1}{5}$$

Reducing a figure

Example 1:

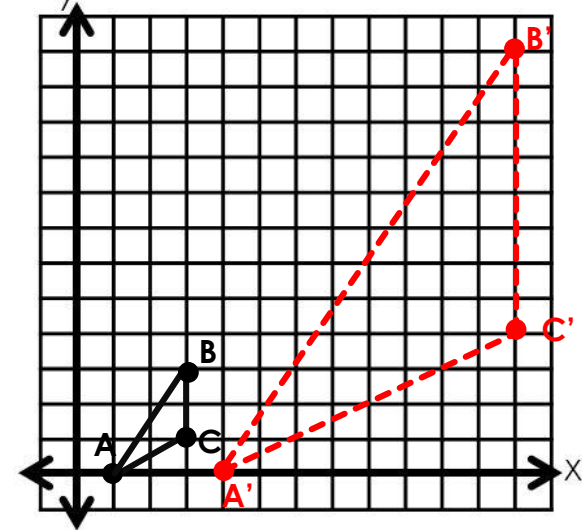
Draw a dilation of $\triangle ABC$ with vertices $A(1, 0)$, $B(3, 3)$, $C(3, 1)$. Use a scale factor of 4.

$$(x, y) \rightarrow (4x, 4y)$$

$$A(1, 0) \rightarrow A'(4, 0)$$

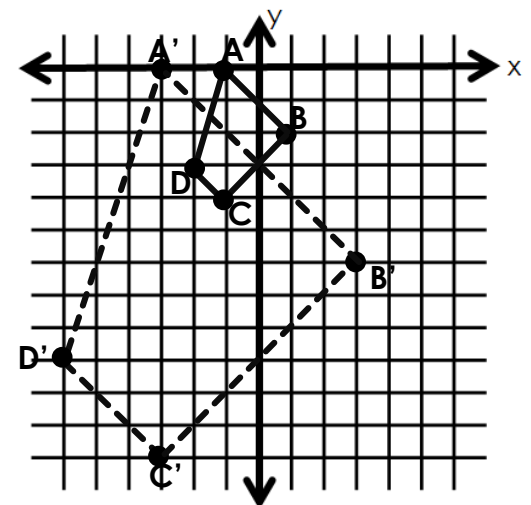
$$B(3, 3) \rightarrow B'(12, 12)$$

$$C(3, 1) \rightarrow C'(12, 4)$$



Example 2:

Find the scale factor of the dilation shown.



$$(x, y) \rightarrow (kx, ky)$$

$$A(-1, 0) \rightarrow A'(-3, 0)$$

$$B(1, -2) \rightarrow B'(3, -6)$$

$$C(-1, -4) \rightarrow C'(-3, -12)$$

$$D(-2, -3) \rightarrow D'(-6, -9)$$

$$\text{Scale Factor: } 3$$

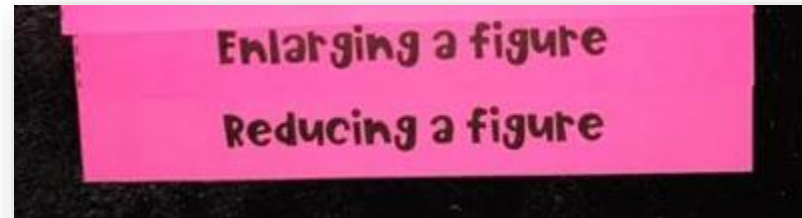
Enlarging a figure

Directions

Print pages 1 & 2 (3 & 4 for the answer key) double sided. On my printer, I use the option to print double sided and to flip along the long edge. If you are printing single sided, simply place the pages in the copy machine as you normally would photocopy any two-sided document. The copy machine automatically “flips along the long edge”.

Have students cut the sheet in half (along the dotted line).

Then, line up the two pieces as shown:



Lastly, fold over the top half and secure with a few staples.

The final product should look like this:

