

key

20.3 I can perform dilations.

Dilations & Scale Factor continued

Go back to 20.1.

For the 1st problem ($D_{(0,0),3} \triangle ABC$), list the coordinates of the pre-image and image.

A (0, 0) $\cdot 3$ A' (0, 0)
 B (1, 0) $\cdot 3$ B' (3, 0)
 C (1, -2) $\cdot 3$ C' (3, -6)

What's the scale factor? 3

Compare the coordinates of the pre-image with their corresponding image coordinate.

What do you notice? (hint: scale factor)

Each coordinate was multiplied by 3 (the scale factor)

For the 1st problem on the back page ($D_{(0,0),\frac{1}{2}} \triangle XYZ$) list the coordinates of the pre-image and image.

X (-4, 2) $\cdot \frac{1}{2}$ X' (-2, 1)
 Y (6, 0) $\cdot \frac{1}{2}$ Y' (3, 0)
 Z (-2, -4) $\cdot \frac{1}{2}$ Z' (-1, -2)

What's the scale factor? $\frac{1}{2}$

Compare the coordinates of the pre-image with their corresponding image coordinate.

What do you notice? (hint: scale factor)

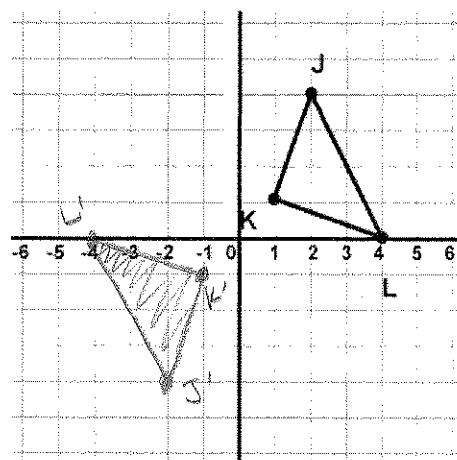
Each coordinate was multiplied by $\frac{1}{2}$
 divided by 2

Let's take this idea and apply it to negative scale factors. We're going to do a scale factor of -1.

First, list the coordinates of the pre-image. Then calculate the coordinates for the image.

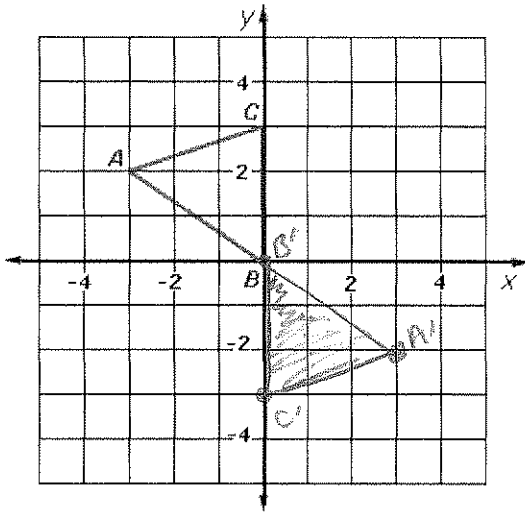
J (2, 4) $\cdot -1$ J' (-2, -4)
 K (1, 1) $\cdot -1$ K' (-1, -1)
 L (4, 0) $\cdot -1$ L' (-4, 0)

Now graph $\triangle J'K'L'$. You've just performed $D_{(0,0),-1} \triangle JKL$.



Perform the given dilations. You are **NOT** required to write down the coordinates, but do so if it helps.

1. $D_{(0,0), -1} \triangle ABC$



A $(-3, 2)$

A' $(3, -2)$

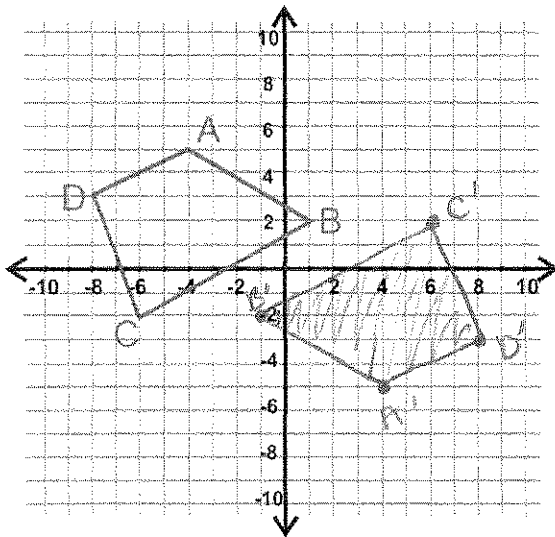
B $(0, 0)$

B' $(0, 0)$

C $(0, 3)$

C' $(0, -3)$

2. $D_{(0,0), -1} ABCD$



A $(-4, 5)$

A' $(4, -5)$

B $(1, 2)$

B' $(1, -2)$

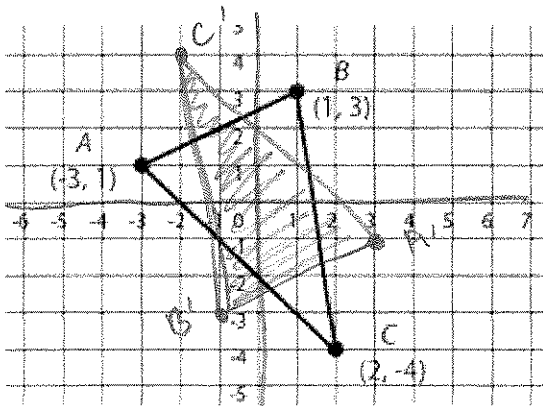
C $(-6, -2)$

C' $(6, 2)$

D $(-8, 3)$

D' $(8, -3)$

3. $D_{(0,0), -1} \triangle ABC$



A $(3, 1)$

A' $(-3, -1)$

B $(1, 3)$

B' $(-1, -3)$

C $(2, -4)$

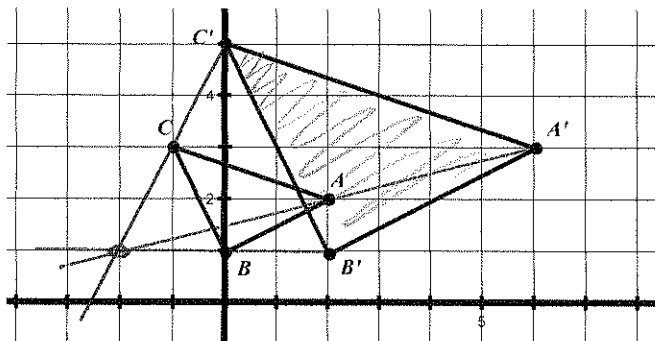
C' $(-2, 4)$

Do these remind you of another transformation??

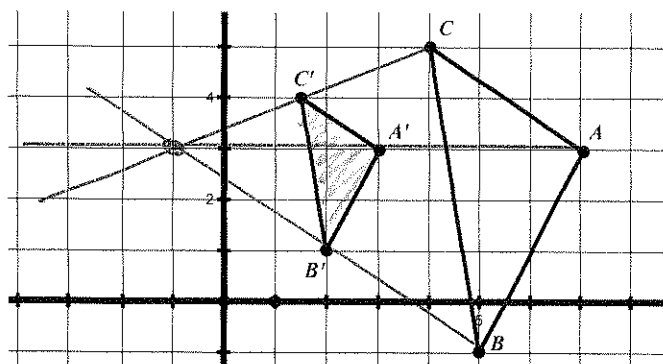
Rotations of $180^\circ =$ Dilations of -1

4. Work backwards to find the center of dilation and determine the scale factor.

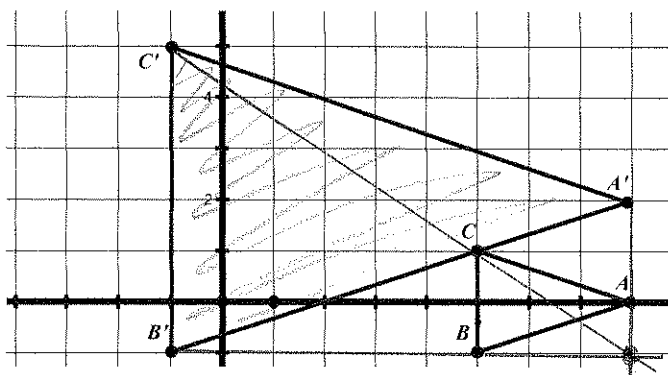
a) Center (-2, 1) Scale Factor = 2



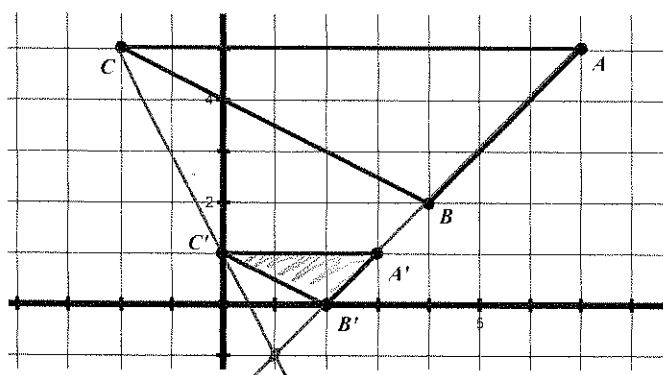
b) Center (-1, 3) Scale Factor = 1/2



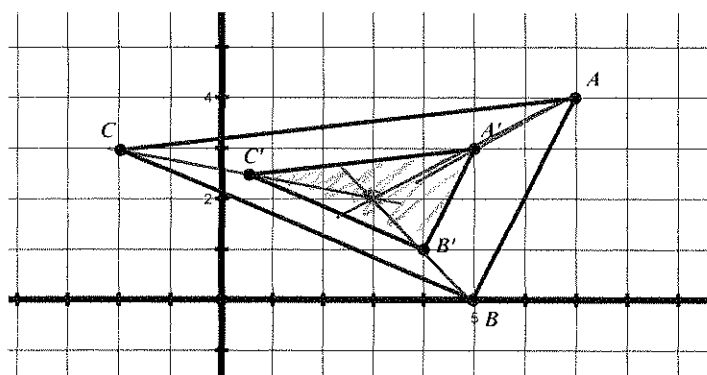
c) Center (8, -1) Scale Factor = 3



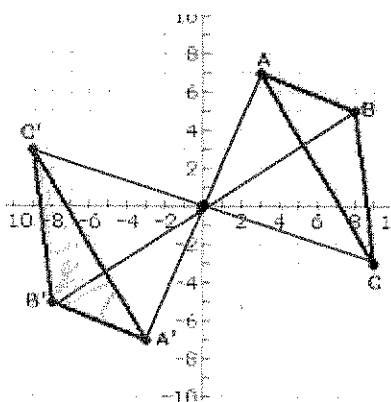
d) Center (1, -1) Scale Factor = 1/3



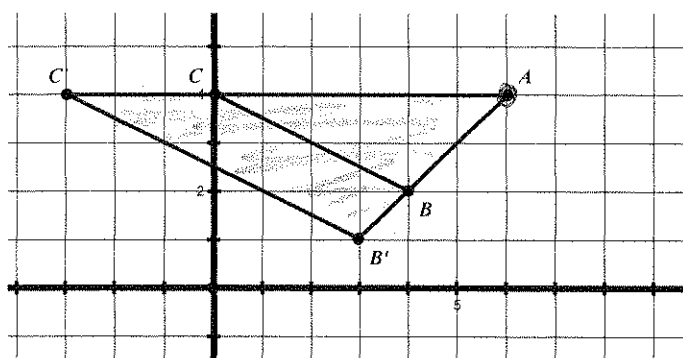
e) Center (3, 2) Scale Factor = 1/2



f) Center (0, 0) Scale Factor = -1



g) Center (6, 4) Scale Factor = 1.5



h) Center (3, 3) Scale Factor = -2

