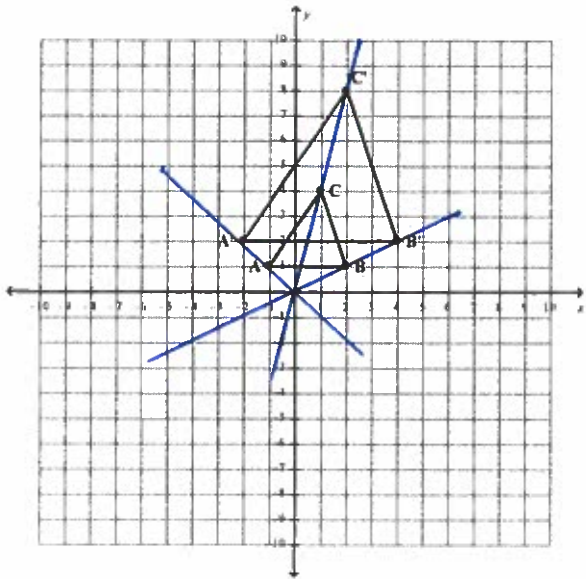


Geometry 1-2 Dilation Review—(G.SRT.1, G.SRT.2)

KEY

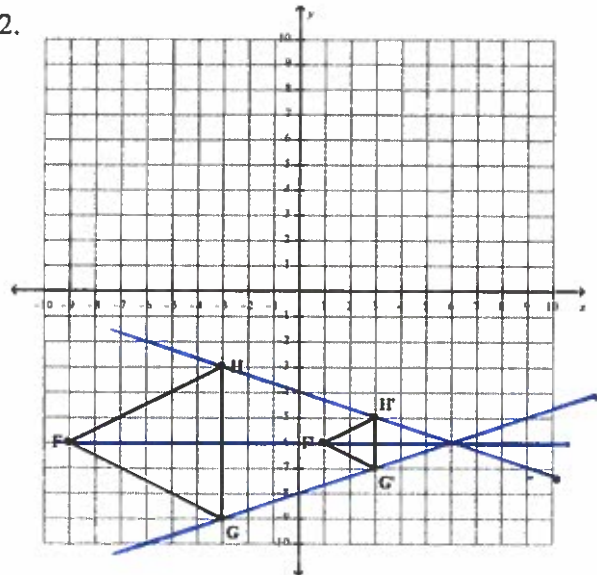
For the following problems, find a) the center of the dilation and b) the scale factor.

1.



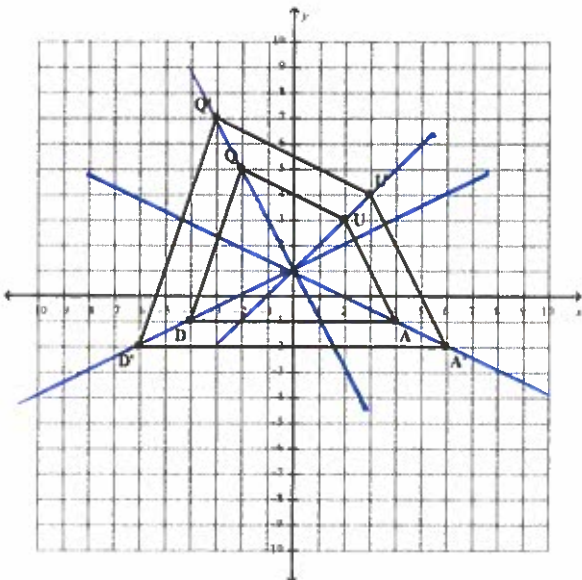
Center of Dilation (0,0)
 Scale Factor 2

2.



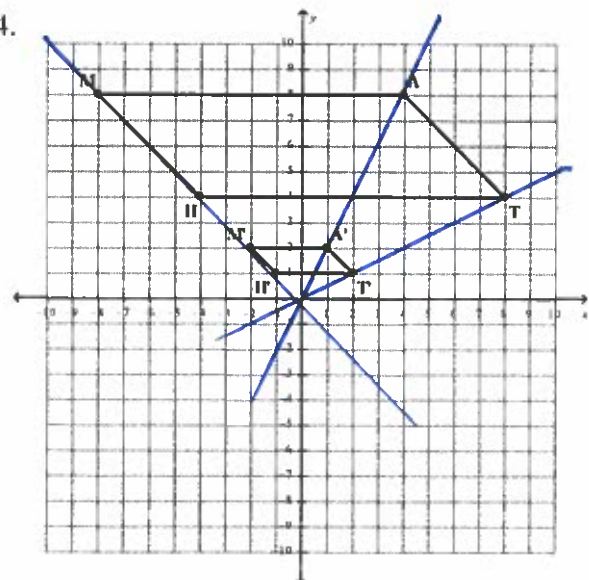
Center of Dilation (6,-6)
 Scale Factor 1/3

3.



Center of Dilation (0,1)
 Scale Factor 2/3

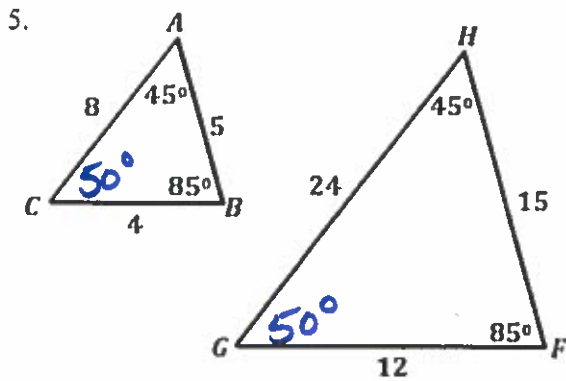
4.



Center of Dilation (0,0)
 Scale Factor 1/4

For the following problems, determine whether the two figures are similar by a) verifying that corresponding angles are congruent and b) verifying that corresponding sides are proportional.

If they are similar, write a similarity statement AND the scale factor (based on how you write your similarity statement).



Corresponding Angles congruence statements
 $\angle A \cong \angle H$; $\angle B \cong \angle F$; $\angle C \cong \angle G$

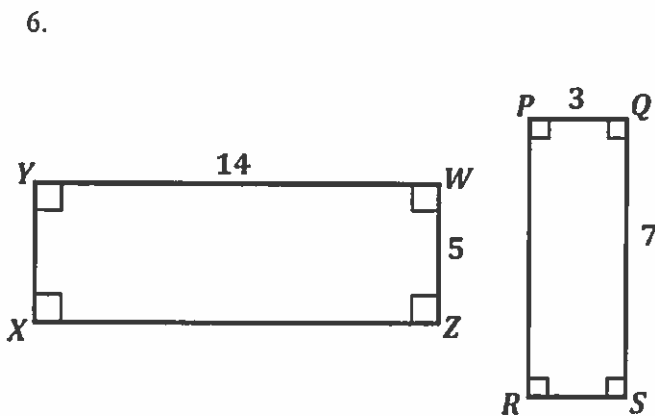
Corresponding Sides Proportional?

$$\frac{5}{15} = \frac{4}{12} = \frac{8}{24}$$

$$\frac{1}{3} = \frac{1}{3} = \frac{1}{3} \checkmark$$

Similarity Statement (if applicable) $\triangle ABC \sim \triangle HFG$

Scale Factor (if applicable) $\frac{1}{3}$



Corresponding Angles congruence statements

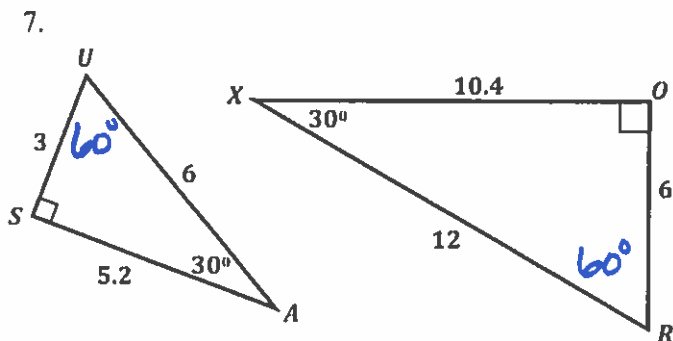
$\angle Y \cong \angle Q$; $\angle W \cong \angle S$; $\angle Z \cong \angle R$
 $\angle X \cong \angle P$

Corresponding Sides Proportional?

$$\frac{14}{7} = \frac{5}{3} \rightarrow \frac{2}{1} \neq \frac{5}{3}$$

Similarity Statement (if applicable) N/A

Scale Factor (if applicable) N/A



Corresponding Angles congruence statements

$\angle U \cong \angle R$; $\angle S \cong \angle O$; $\angle A \cong \angle X$

Corresponding Sides Proportional?

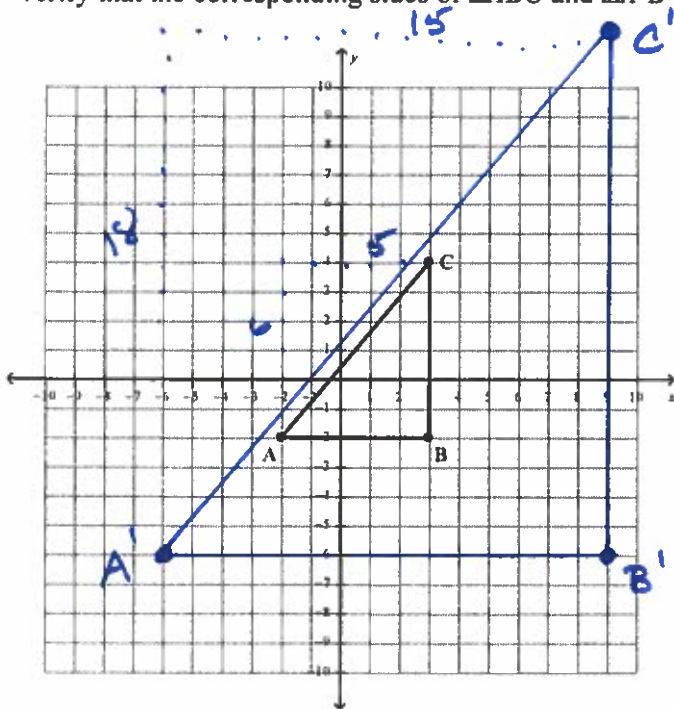
$$\frac{3}{6} = \frac{6}{12} = \frac{5.2}{10.4}$$

$$\frac{1}{2} = \frac{1}{2} = \frac{1}{2} \checkmark$$

Similarity Statement (if applicable) $\triangle USA \sim \triangle ROX$

Scale Factor (if applicable) $\frac{1}{2}$

8. Sketch the dilation of $\triangle ABC$ using a scale factor of 3 if the dilation point is at the origin. After graphing the image, verify that the corresponding sides of $\triangle ABC$ and $\triangle A'B'C'$ are both parallel and proportional.



$$\begin{aligned} A(-2, -2) &\rightarrow A'(-6, -6) \\ B(3, -2) &\rightarrow B'(9, -6) \\ C(3, 4) &\rightarrow C'(9, 12) \end{aligned}$$

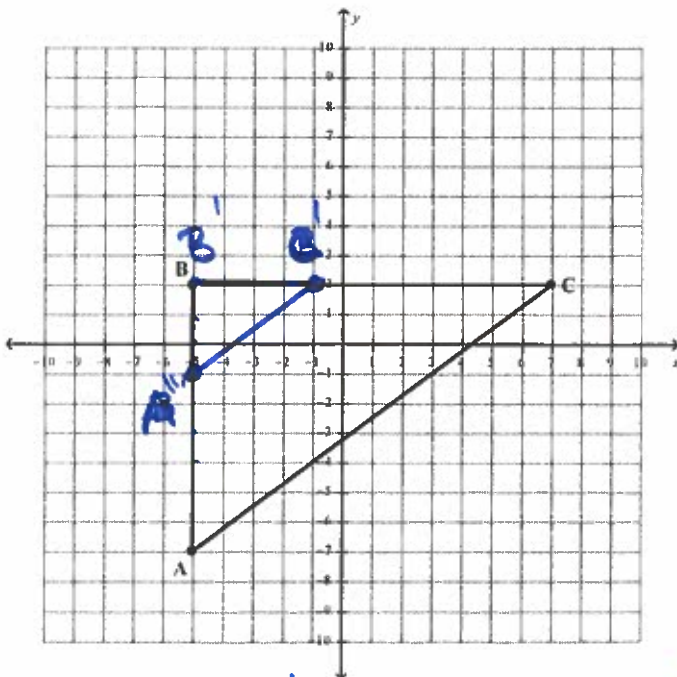
Verify sides are parallel:

$$\begin{aligned} m_{C'B} &\rightarrow \text{UNDEF} & m_{C'B'} &\rightarrow \text{UNDEF} \checkmark \\ m_{AB} &= 0 & m_{A'B'} &= 0 \checkmark \\ m_{AC} &= \frac{6}{5} & m_{A'C'} &= \frac{18}{15} = \frac{6}{5} \checkmark \end{aligned}$$

Verify sides are proportional:

$$\begin{aligned} \frac{AB=5}{B'B'=15} &\} \frac{15}{5} = \frac{3}{1} \checkmark \\ \frac{BC=6}{B'C'=18} &\} \frac{18}{6} = \frac{3}{1} \checkmark \\ AC &= \sqrt{6^2 + 5^2} = \sqrt{36 + 25} = \sqrt{61} \approx 7.8 \\ A'C' &= \sqrt{18^2 + 15^2} = \sqrt{324 + 225} = \sqrt{549} \approx 23.4 \\ \frac{23.4}{7.8} &= \frac{3}{1} \checkmark \end{aligned}$$

9. Sketch the dilation of $\triangle ABC$ using a scale factor of $\frac{1}{3}$ if the dilation point is at point B. After graphing the image, verify that the corresponding sides of $\triangle ABC$ and $\triangle A'B'C'$ are both parallel and proportional.



Verify sides are parallel:

$$\begin{aligned} m_{AB} &\rightarrow \text{UNDEF} & m_{A'B'} &\rightarrow \text{UNDEF} \checkmark \\ m_{BC} &= 0 & m_{B'C'} &= 0 \checkmark \\ m_{AC} &= \frac{9}{12} = \frac{3}{4} & m_{A'C'} &= \frac{3}{4} \checkmark \end{aligned}$$

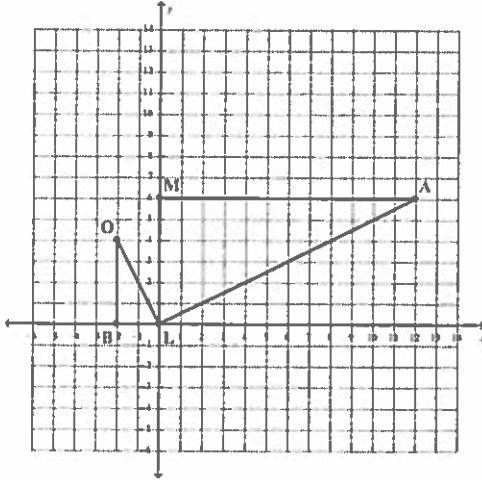
Verify sides are proportional:

$$\begin{aligned} \frac{AB=9}{A'B'=3} &\} \frac{3}{9} = \frac{1}{3} \checkmark \\ \frac{BC=12}{B'C'=4} &\} \frac{4}{12} = \frac{1}{3} \checkmark \\ AC &= \sqrt{9^2 + 12^2} = \sqrt{81 + 144} = \sqrt{225} = 15 \\ A'C' &= \sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5 \\ \frac{5}{15} &= \frac{1}{3} \checkmark \end{aligned}$$

$$\begin{aligned} A(-5, -7) &\rightarrow A'(-5, -1) \\ B(-5, 2) &\rightarrow B'(-5, 2) \\ C(7, 2) &\rightarrow C'(-1, 2) \end{aligned}$$

SM LG

10. Determine the sequence of similarity transformations that maps $\triangle BOL$ onto $\triangle MAL$.

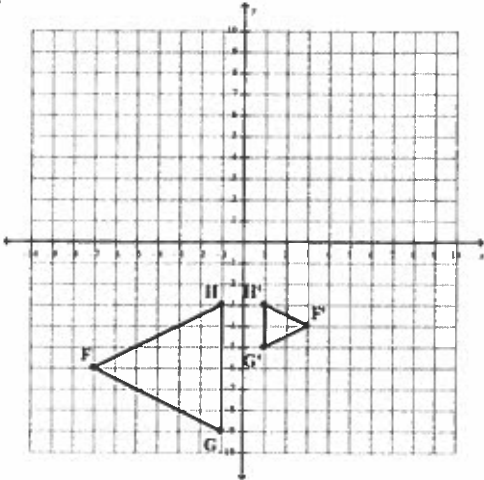


90° CW ABOUT ORIGIN followed by

DILATION BY FACTOR OF 3

What is the scale factor? $\frac{3}{1}$

11. Determine the sequence of similarity transformations that maps $\triangle FGH$ onto $\triangle F'G'H'$.

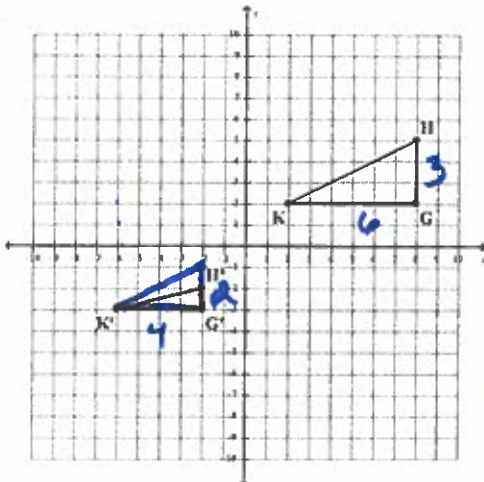


DILATION FROM POINT H followed by

REFLECTION OVER Y-AXIS
 $\frac{1}{3}$ (x=0)

What is the scale factor? $\frac{1}{3}$

12. Determine the sequence of similarity transformations that maps $\triangle KGH$ onto $\triangle K'G'H'$.



DILATION FROM POINT K followed by

TRANSLATION 8 LEFT 5 DOWN

What is the scale factor? $\frac{2}{3}$

FIX H'