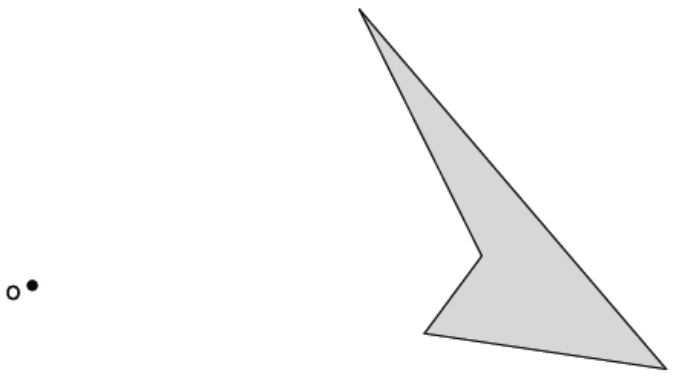
Name _____ Date _____

1. Use the figure below to complete parts (a) and (b).

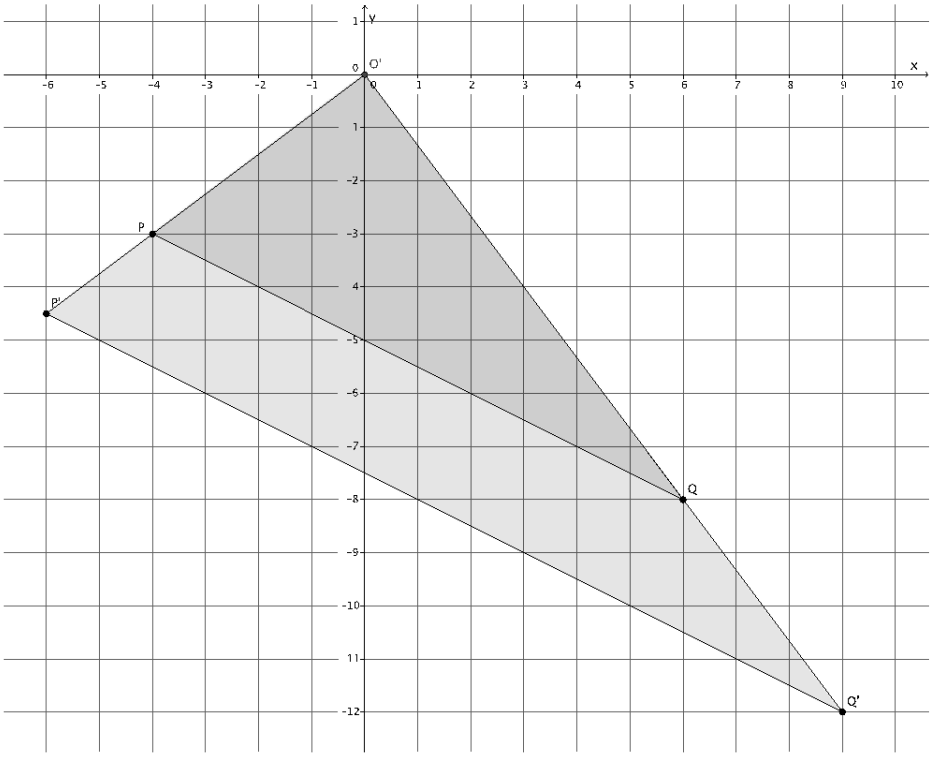


a. Use a compass and ruler to produce an image of the figure with center O and scale factor $r = 2$.

b. Use a ruler to produce an image of the figure with center O and scale factor $r = \frac{1}{2}$.

2. Use the diagram below to answer the questions that follow.

Let D be the dilation with center O and scale factor $r > 0$ so that $D(P) = P'$ and $D(Q) = Q'$.

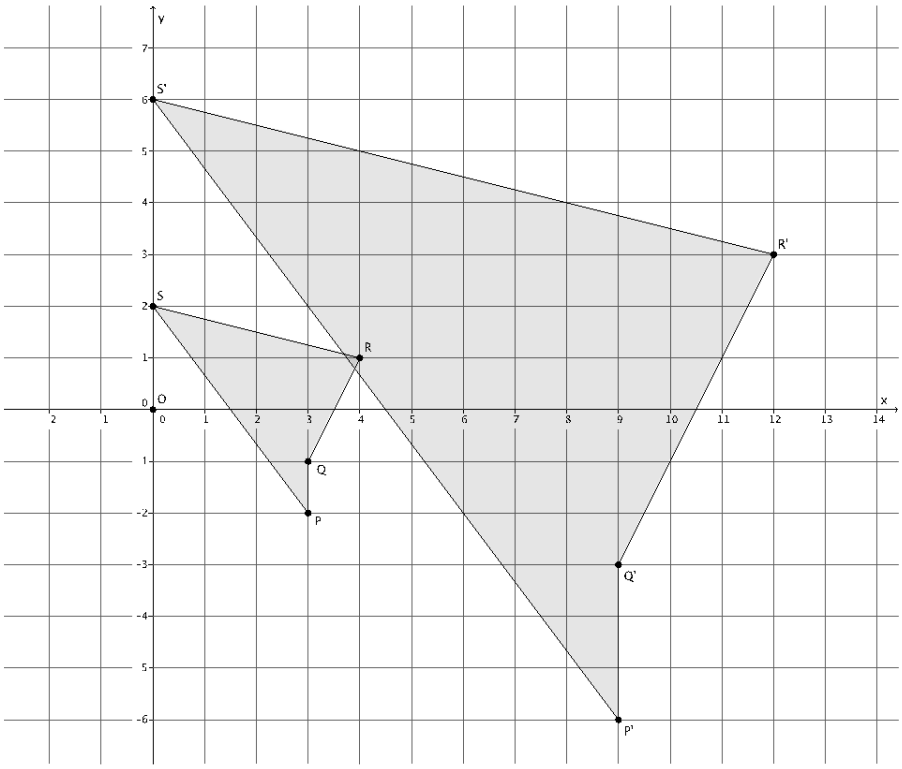


a. Use lengths $|OQ| = 10$ units and $|OQ'| = 15$ units, to determine the scale factor r, of dilation D. Describe how to determine the coordinates of P' using the coordinates of P.

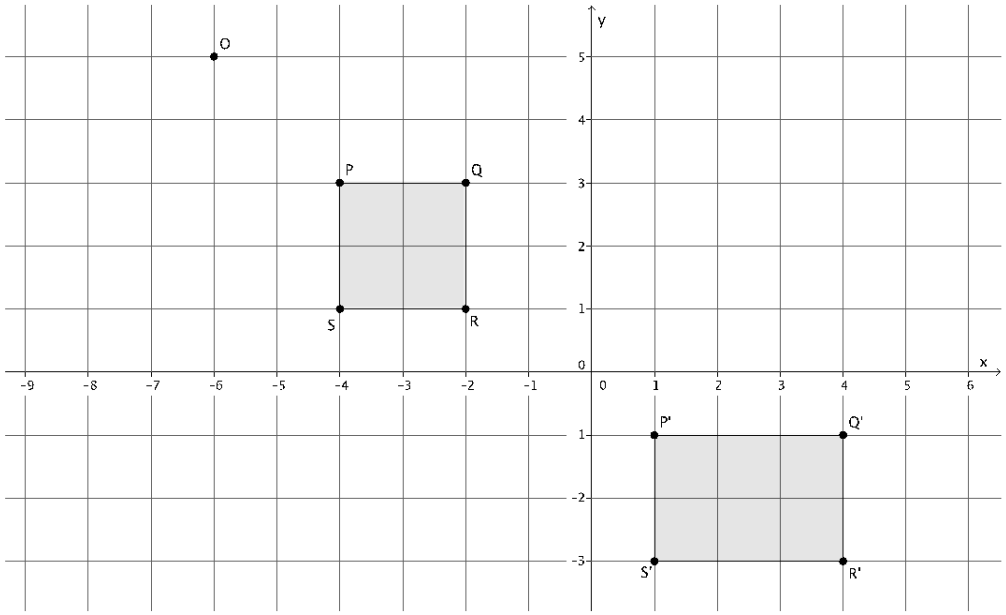
b. If $|OQ| = 10$ units, $|OQ'| = 15$ units, and $|P'Q'| = 11.2$ units, determine the length of $|PQ|$. Round your answer to the tenths place, if necessary.

3. Use a ruler and compass, as needed, to answer parts (a) and (b).

   a. Is there a dilation D with center O that would map figure $PQRS$ to figure $P'Q'R'S'$? If yes, describe the dilation in terms of coordinates of corresponding points.



b. Is there a dilation D with center O that would map figure $PQRS$ to figure $P'Q'R'S'$? If yes, describe the dilation in terms of coordinates of corresponding points.



c. Triangle ABC is located at points $A = (-4, 3)$, $B = (3, 3)$, and $C = (2, -1)$ and has been dilated from the origin by a scale factor of 3. Draw and label the vertices of triangle ABC. Determine the coordinates of the dilated triangle $A'B'C'$ and draw and label it on the coordinate plane.