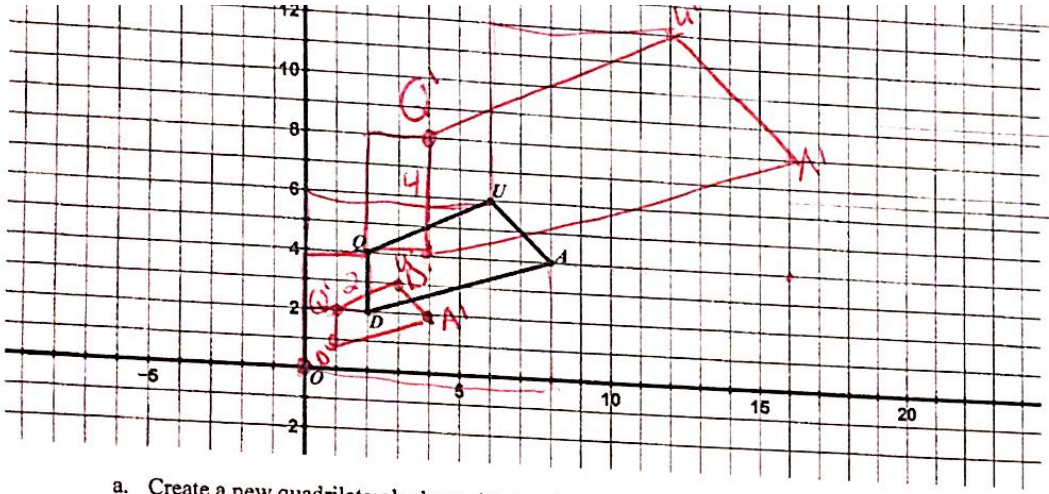


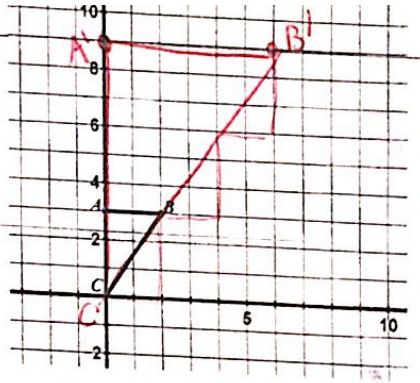
a. Create a new quadrilateral whose side lengths are two times larger than the side lengths of $QUAD$ with the center of dilation at the origin and label the image $Q'U'A'D'$. In the space below, describe the method you used to create your new quadrilateral.

Slope Δs from center of dilation

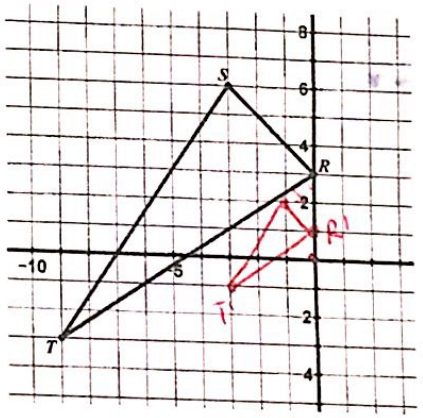
b. Based on what we have learned so far about dilations, what are some different ways you can verify that the side lengths of your new quadrilateral are in fact two times larger than the side lengths of the original?

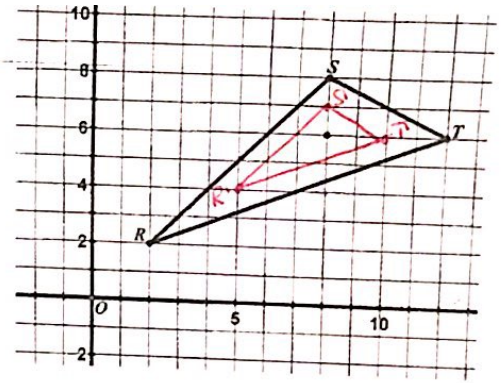
$(x, y) \rightarrow (2x, 2y)$

c. This time, create a quadrilateral whose sides lengths are $\frac{1}{2}$ the size of the side lengths of $QUAD$ with the center of dilation at the origin and label the image $Q''U''A''D''$.

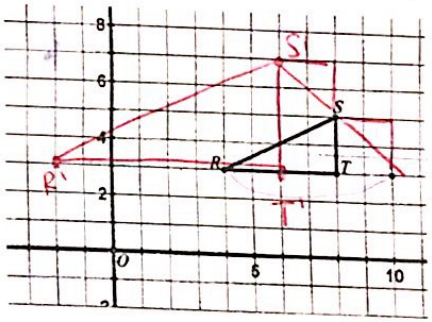


3. $r = \frac{1}{3}$ Center of Dilation: origin





5. $r = 2$ Center of Dilation: (10, 3)



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dilation is the origin.
the triangles.

6. A dilation with the center of dilation at the origin maps ΔABC to $\Delta A'B'C'$.

   a. If $AB = 3$ and $A'B' = 6$, what is the scale factor of the dilation? 2

   b. If $B'C' = 8$, what is the length of BC? 4

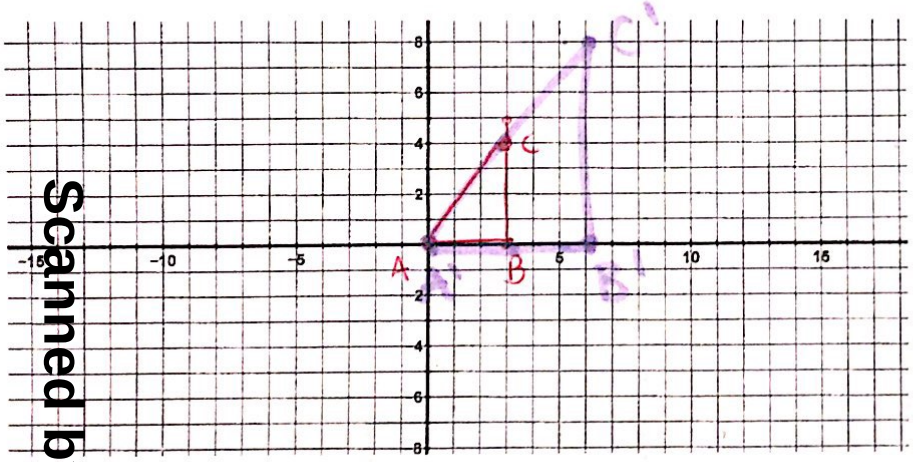
   c. If $AC = 5$, what is the length of $A'C'$? 10

   d. If the slope of $\overline{AB}$ is 0, what is the slope of $\overline{A'B'}$? 0

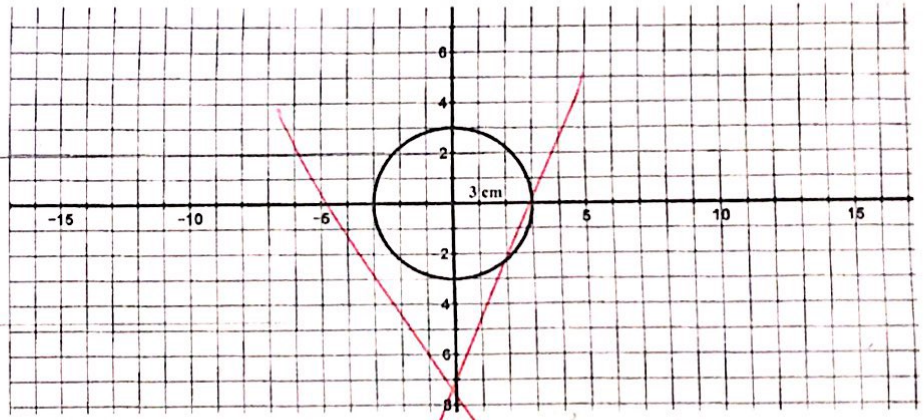
   e. If the slope of $\overline{A'C'}$ is $\frac{4}{3}$, what is the slope of $\overline{AC}$? 4/3

   f. Create a picture of this dilation on the grid below using the information from parts a – e and the additional pieces of information below. *Remember that the center of dilation is the origin.*

   - The slope of CB is undefined
   - A is at the origin



7. A circle with a radius of 3 cm is shown below.



   a. Determine the length of the radius of a circle whose circumference would be twice as large as the circle pictured above.

   b. Determine the length of the radius of a circle whose area would be twice as large as the circle pictured above.

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