11.10 Circle equations and secants

1. What is an equation of the image of the line $y = -x - 8$ after a dilation with a scale factor of $\frac{7}{4}$ centered at the origin?

2. The equation of a cirle is $x^2 + y^2 + 8x - 12y = 12$. What are the center and radius of the circle?

3. Which equation represents a line that is perpendicular to the line represented by

   $y = -\frac{1}{3}x + 7$?

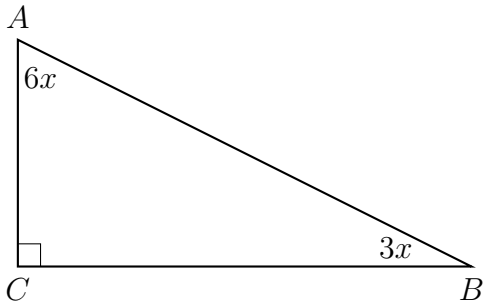
   (a) $3x + y = 10$

   (b) $3x - y = 10$

   (c) $y = -\frac{1}{3}x + 2$

   (d) $y = \frac{1}{3}x + 4$

4. In the diagram below of right $\triangle ABC$, $\sin A = \cos B$, $m\angle A = 6x$, and $m\angle B = 3x$. Find x.



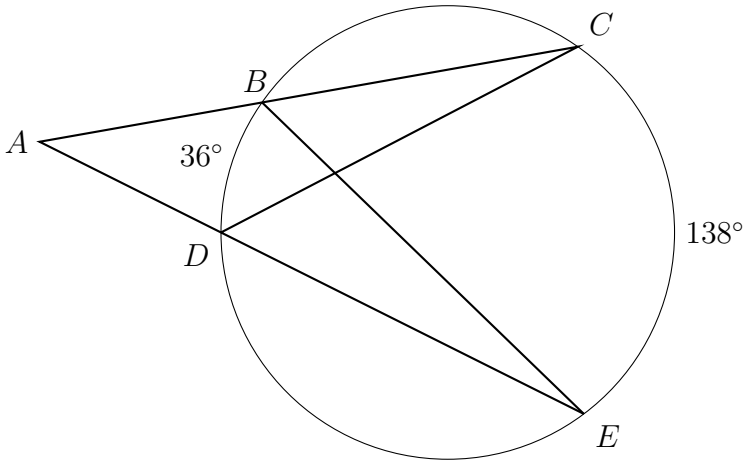
5. The secants $\overline{ABC}$ and $\overline{ADE}$ intersect the circle O, as shown in the diagram. Given $m\widehat{BD} = 36°$ and $m\widehat{CE} = 138°$.

   (a) Find the $m\angle CDE$, $m\angle CBE$.

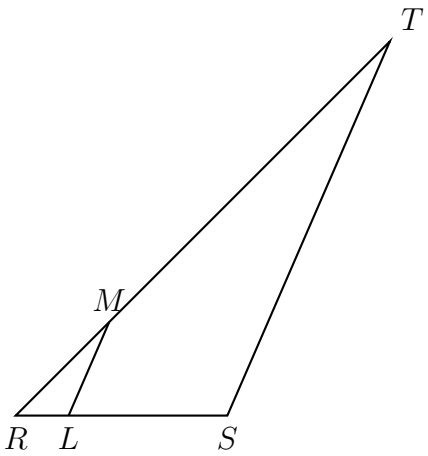
   (b) Find the $m\angle C$, $m\angle E$.

   (c) Find the $m\angle A$.

   (d) Two similar triangles are shown. Write a similarity statement, listing the triangles' vertices in corresponding order.



6. In the diagram below of $\triangle RST$, L is a point on $\overline{RS}$, and M is a point on $\overline{RT}$, such that $\overline{LM} \parallel \overline{ST}$.



If $RM = 4$, $MT = 12$, and $ST = 15$, what is the length of $\overline{LM}$?