11.6 Circle equations and secants

1. What is the equation of a circle with center $(1, -9)$ and radius $r = 8$?

2. The equation of a cirle is $x^2 + y^2 + 4x - 8y = -16$. The statement that best describes circle O is the

   (a) center is $(2, -4)$ and is tangent to the x-axis

   (b) center is $(2, -4)$ and is tangent to the y-axis

   (c) center is $(-2, 4)$ and is tangent to the x-axis

   (d) center is $(-2, 4)$ and is tangent to the y-axis

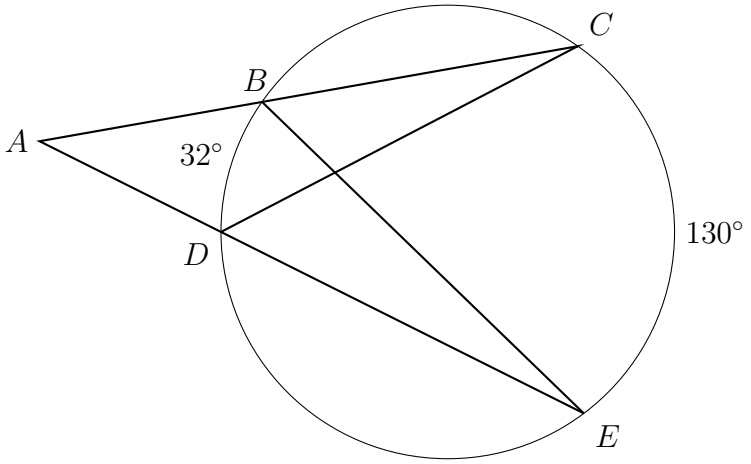
3. The secants $\overline{ABC}$ and $\overline{ADE}$ intersect the circle O, as shown in the diagram. Given $m\widehat{BD} = 32°$ and $m\widehat{CE} = 130°$.

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

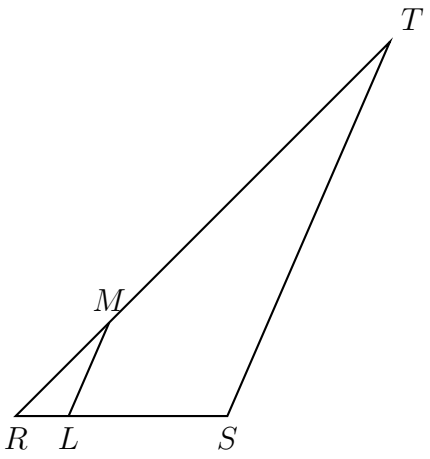
   (b) Find the $m\angle C$, $m\angle E$.

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

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



4. 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 $RL = 2$, $LS = 6$, $LM = 4$, and $ST = x + 2$, what is the length of $\overline{ST}$?

5. The endpoints of directed line segment PQ have coordinates of $P(-7, -5)$ and $Q(5, 3)$. What are the coordinates of point A, on $\overline{PQ}$, that divide $\overline{PQ}$ into a ratio of 1:3?

6. Determine and state an equation of the line perpendicular to the line $5x - 4y = 10$ and passing through the point $(5, 12)$.

7. In the diagram below of right $\triangle ABC$, $\sin A = \cos B$, $m\angle A = 2x$, and $m\angle B = x$. Find x.