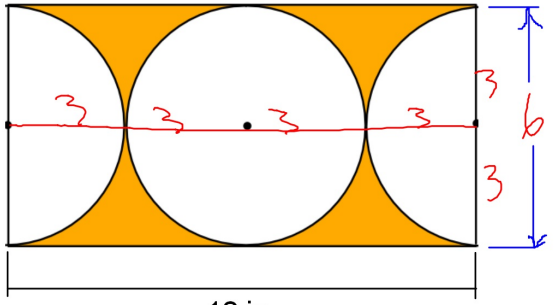
Find the area of the shaded region to the nearest tenth.



Rect − 2 arcs

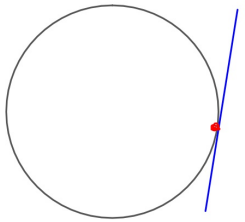
$b \cdot h - 2 \cdot \pi r^2$

$12(6) - 2\pi(3)^2$

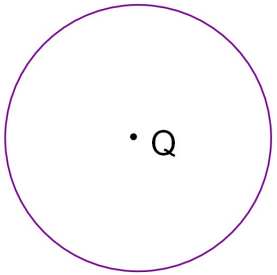
$= 15.5 \text{ in}^2$

Sec 12-1: Tangent Lines

A line is tangent to a circle if it intersects the circle in exactly one point.
(they must be in the same plane)



Draw a line tangent to circle Q.



Get a piece of paper, a rule, and a compass.

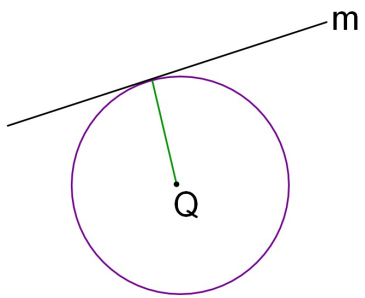
1. Place a dot on a piece of paper and label it Q.

2. Draw a circle with Q as the center.

3. Draw line m so that it is tangent to Circle Q.

4. Draw a radius of Circle Q to the point of tangency of line m.

Line m is tangent to Circle Q.

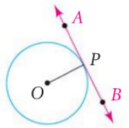


What kind of angle does it appear is formed by the tangent line and the radius drawn to the point of tangency? Appears to be a right angle.

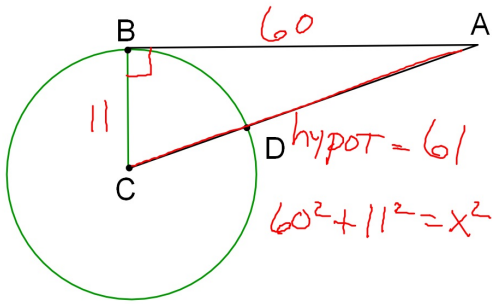
Theorem 12-1

If a line is tangent to a circle, then the line is perpendicular to the radius drawn to the point of tangency.

$\overleftrightarrow{AB} \perp \overline{OP}$



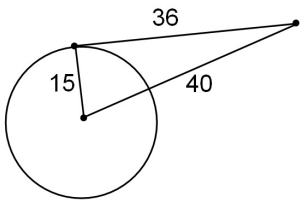
$\overline{AB}$ is tangent to circle C at point B.



If AB = 60 and BC = 11 find AC.

Find AD. AD = AC - 11 = 61 - 11 = 50.

Is the line tangent to the circle?

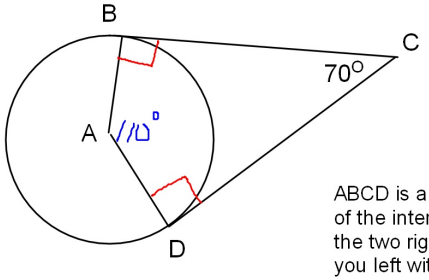


NO

$36^2 + 15^2 \stackrel{?}{\neq} 40^2$

Pythagorean Theorem isn't true for the given sides so there isn't a right angle.

Both lines are tangent to the circle. Find the measure of Central Angle ∠BAD.



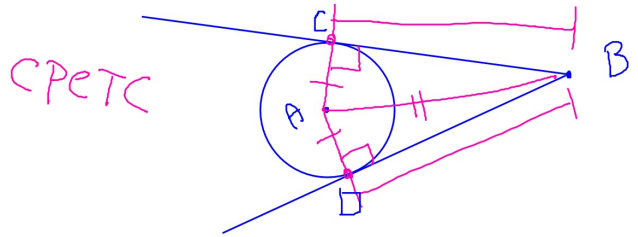
ABCD is a quadrilateral so the sum of the interior angles is 360°. Subtract the two right angles and the 70° and you left with 110°

Draw Circle A.

Pick a point outside of the circle and label it point B

Draw two tangents to Circle A from point B

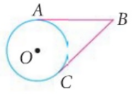
What appears to be true about these two tangents? CB ≅ DB

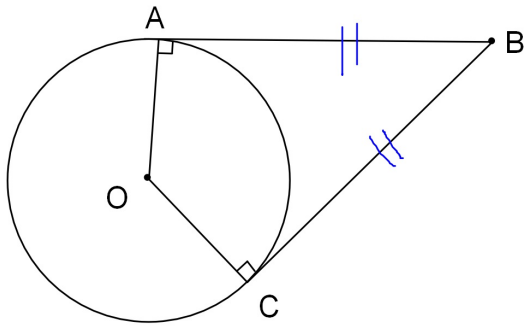


Theorem 12-3

The two segments tangent to a circle from a point outside the circle are congruent.

$\overline{AB} \cong \overline{CB}$

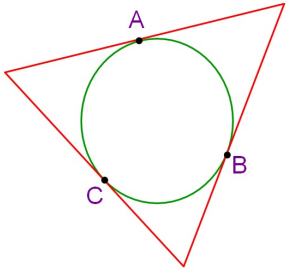




Points A, B, and C are points of tangency.

The circle is inscribed in the triangle.

The triangle is circumscribed about the circle.



Points A, B, and C are points of tangency.
Find the values of x and y.