Tangents

Determine whether each segment is tangent to the given circle. Justify your answer.

$41^2 \stackrel{?}{=} 40^2 + 9^2$

$1681 \stackrel{?}{=} 1681$

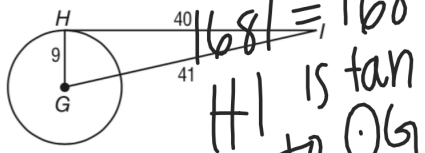
$\overline{HI}$ is tan to $\odot G$

$13^2 \stackrel{?}{=} 12^2 + 4^2$

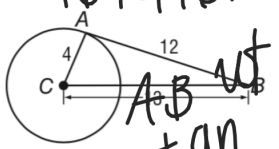
$169 \neq 169$

$\overline{AB}$ is not tan

1. $\overline{HI}$

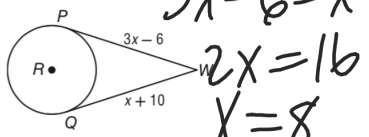


2. $\overline{AB}$



Find x. Assume that segments that appear to be tangent are tangent. Round to the nearest tenth if necessary.

3.

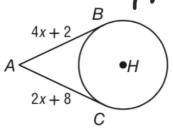


$3x - 6 = x + 10$

$2x = 16$

$x = 8$

4.

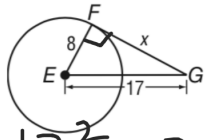


$4x + 2 = 2x + 8$

$2x = 6$

$x = 3$

5.

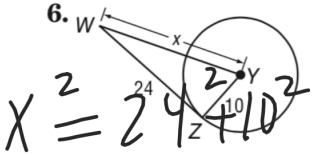


$17^2 = 8^2 + x^2$

$225 = x^2$

$x = 15$

6.



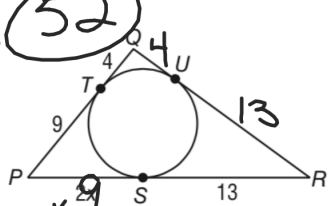
$x^2 = 24^2 + 10^2$

$x^2 = 676$

$x = 26$

For each figure, find x. Then find the perimeter.

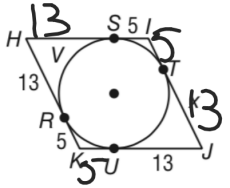
7. 52



$x = 4.5$

72

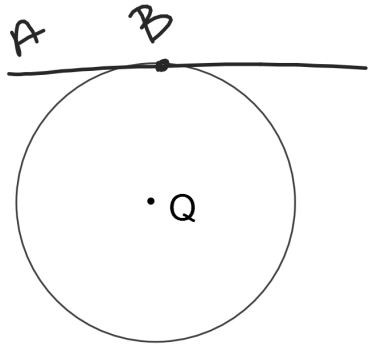
8.



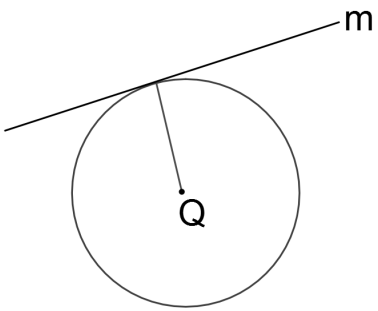
Sec 12-1: Tangent Lines

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.



Line m is tangent to Circle Q.

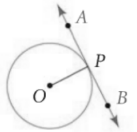


What kind of angle does it appear is formed by the tangent line and the radius drawn to the point of tangency?

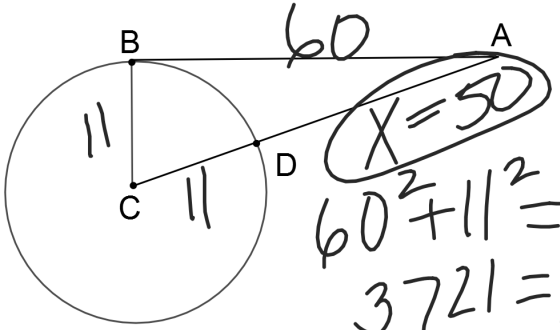
Theorem 12-1

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.



60

$X = 50$ AC

$60^2 + 11^2 = X^2$

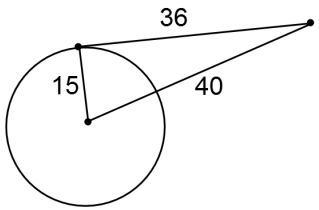
$3721 = X^2$

$X = 61$

If AB = 60 and BC = 11 find AC.

Find AD.

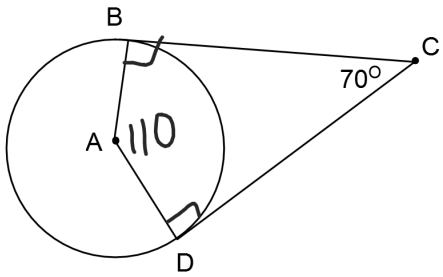
Is the line tangent to the circle?



$40^2 \neq 36^2 + 15^2$

NO.

Both lines are tangent to the circle. Find the measure of Central Angle $\angle BAD$.



360

Draw Circle A.

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

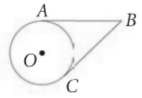
Draw two tangents to Circle A from point B

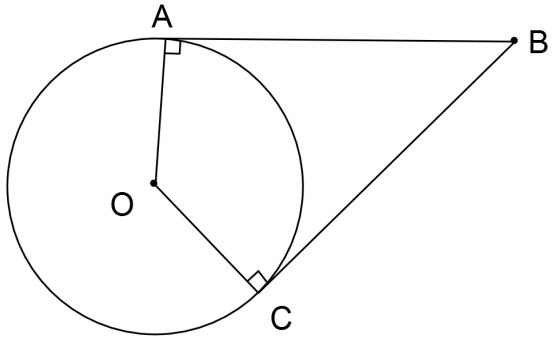
What appears to be true about these two tangents?

Theorem 12-3

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

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

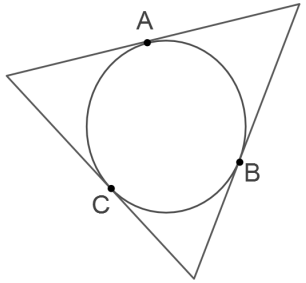




Points A, B, and C are points of tangency.

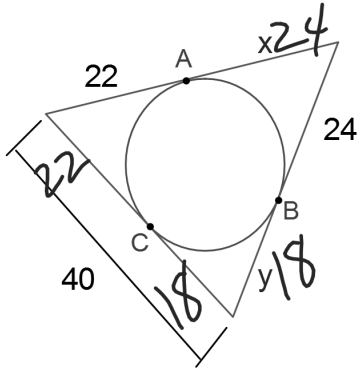
The circle is inscribed in the triangle.

The triangle is circumscribed about the circle.



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

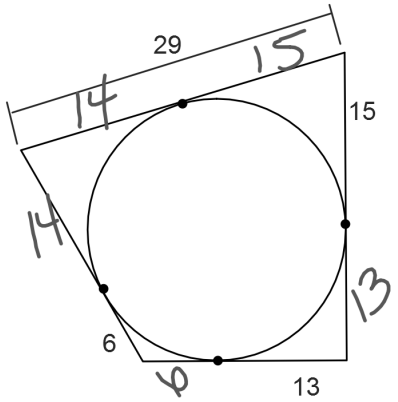
Find the values of x and y.



$P = 128$

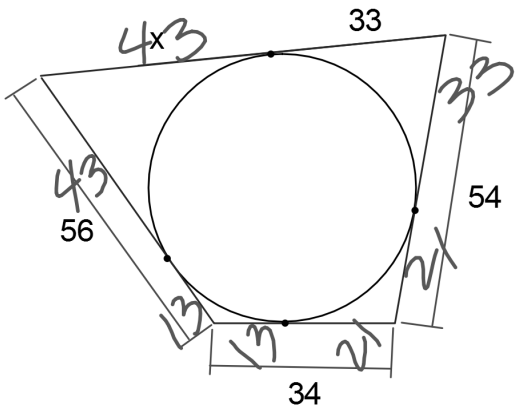
Find the perimeter of the polygon that is circumscribed about the circle.

All sides of the polygon are tangent to the circle.



$P = 96$

The circle is inscribed in the quadrilateral.
Find the value of x.



P=220

Hwk #28 -

Sect. 12-1

Pages: 665-666

Problems: 1-3, 8-10, 11-15

IXL #14 - U.3 & U.4 due Friday at 4pm!