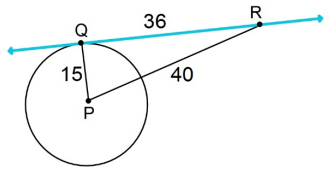
Tuesday, April 28, 2020

Finish Sec 12-1: Tangent Lines

Is line QR tangent to circle P?



Only if $\angle PQR$ is a right angle which means ΔPQR would have to be a right Δ.

Is 15, 36, 40 a Pythagorean Triple?

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

$$1600 \stackrel{?}{=} 225 + 1296$$

$$1600 \neq 1521$$

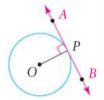
This means ΔPQR is **not** a right triangle so $\angle PQR$ is not a right angle thus $\overline{QR}$ is not tangent to circle P because it's not perpendicular to the radius $\overline{PQ}$.

The problem on the previous page is an example of the following Theorem:

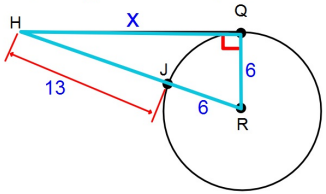
Theorem 12-2

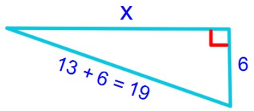
If a line in the plane of a circle is perpendicular to a radius at its endpoint on the circle, then the line is tangent to the circle.

$\overleftrightarrow{AB}$ is tangent to $\odot O$.



$\overline{HQ}$ is tangent to $\odot R$ at pt Q. Find the length of $\overline{HQ}$ to the nearest hundredth.



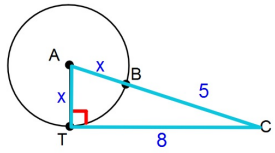


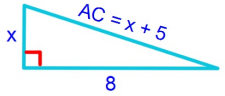
$$19^2 = x^2 + 6^2$$

$$x^2 = 19^2 - 6^2$$

$$\overline{HQ} = x = \sqrt{19^2 - 6^2} = 18.03$$

$\overline{CT}$ is tangent to ⊙A at pt T. CT = 8 and BC = 5. Find the value of x to the nearest hundredth.

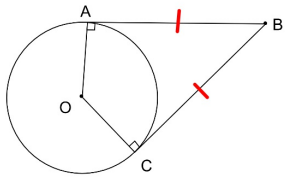




$$(x+5)^2 = x^2 + 8^2$$
$$x^2 + 10x + 25 = x^2 + 64$$
$$10x + 25 = 64$$
$$10x = 39$$
$$x = 3.90$$

Theorem 12-3

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

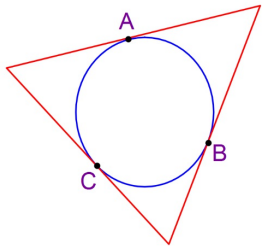


$\overline{AB} \cong \overline{CB}$

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

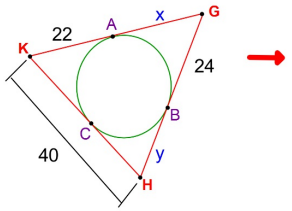
The circle is inscribed in the triangle.

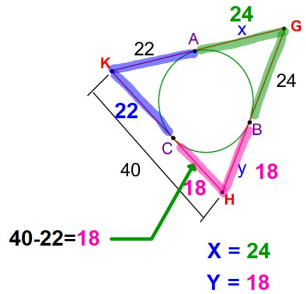
The triangle is circumscribed about the circle.



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

Find the values of x and y.



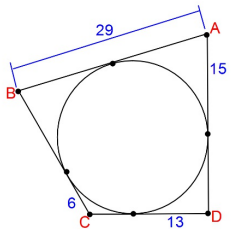


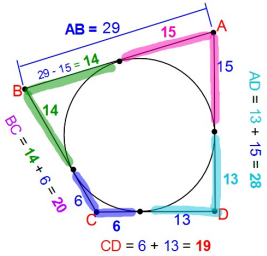
X = 24

Y = 18

Find the perimeter of this polygon that is circumscribed about the circle.
All sides of the polygon are tangent to the circle.

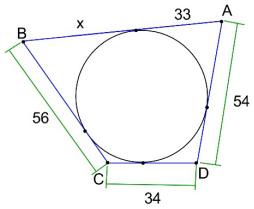
Perimeter = AB + BC + CD + AD = 29 + 20 + 19 + 28 = 96.

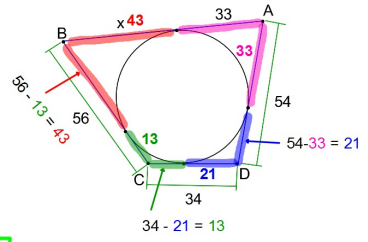




The circle is inscribed in the quadrilateral. Find the value of x.

This means all sides are tangent to the circle.





x = 43

You can now finish the rest of Practice #21.

This practice will be due by 10:00 pm on Thursday, April 30.