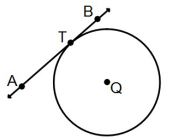
Tuesday, May 5, 2020

Sec 12-4: Angle Measures and Segment Lengths.

Tangent Line:

A line that intersects a circle exactly once.

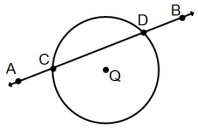
$\overleftrightarrow{AB}$ is tangent to ⊙Q at point T



Secant Line:

A line that intersects a circle at two points.

$\overleftrightarrow{AB}$ is a secant of ⊙Q because it intersects the circle at points C and D.



Theorem 12-11

The measure of an angle formed by two lines that

(1)

(2)

Theorem 12-11

The measure of an angle formed by two lines that

(1) intersect inside a circle is half the sum of the measures of the intercepted arcs.

$m\angle 1 = \frac{1}{2}(x + y)$

Theorem 12-11

(2) intersect outside a circle is half the difference of the measures of the intercepted arcs.

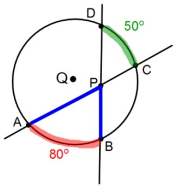
2 Secants

1 Secant and 1 Tangent

2 Tangents

$$m\angle 1 = \frac{1}{2}(x - y)$$

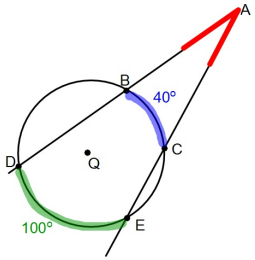
In the following examples Q is the center of each circle.



Find m∠APB

$m\angle APB = \frac{1}{2} \bullet (80° + 50°)$

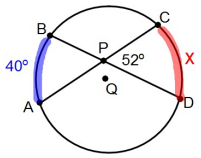
$= \frac{1}{2} \bullet 130° = \boxed{65°}$



Find the m∠A.

$m\angle A = \frac{1}{2} \bullet (100° - 40°)$

$= \frac{1}{2} \bullet (60°) = \boxed{30°}$



Find $m\overset{\frown}{CD}$.

$m\angle CPD = \frac{1}{2} \cdot (40^\circ + x)$

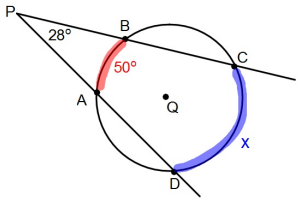
$52^\circ = \frac{1}{2} \cdot (40^\circ + x)$

$2 \cdot 52^\circ = \frac{1}{2} \cdot (40^\circ + x) \cdot 2$

$104 = 40 + x$

$-40 \quad -40$

$x = m\overset{\frown}{CD} = 64^\circ$



Find $m\overset{\frown}{CD}$.

$m\angle P = \frac{1}{2} \cdot (x - 50^\circ)$

$28^\circ = \frac{1}{2} \cdot (x - 50^\circ)$

$2 \cdot 28^\circ = \frac{1}{2} \cdot (x - 50^\circ) \cdot 2$

$56^\circ = x - 50$

$+50 \quad +50$

$x = \overset{\frown}{CD} = 106^\circ$

You can now finish the rest of Practice #23.

This practice and it will be due on Thursday, May 7 by 10:00pm