

DO NOW

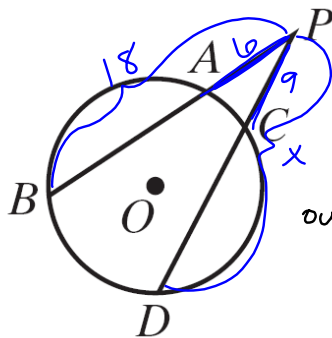
In the diagram below of circle O , chords \overline{AB} and \overline{CD} intersect at E .

$10 \cdot 6 = 4 \cdot x$
 $\frac{60}{4} = \frac{4x}{4}$
 $15 = x$
 $EB = 15$

If $CE = 10$, $ED = 6$, and $AE = 4$, what is the length of \overline{EB} ?

Mar 28-10:10 AM

Segments Formed by Two Secants



$$(PB)(PA) = (PD)(PC)$$

outside part · whole =
outside part · whole

EX: If $PA = 6$, $PB = 18$ and $PC = 9$, find \overline{PD} .

$$6 \cdot 18 = 9 \cdot x$$

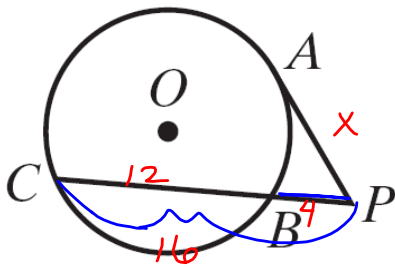
$$108 = 9x$$

$$12 = x$$

$$PD = 12$$

Mar 23-10:07 AM

Segments Formed by a Tangent and a Secant



$$(PA)^2 = (PC)(PB)$$

EX: If $PB = 4$ and $BC = 12$, find PA .

$$16 \cdot 4 = x \cdot x$$

$$\sqrt{64} = \sqrt{x^2}$$

$$8 = x$$

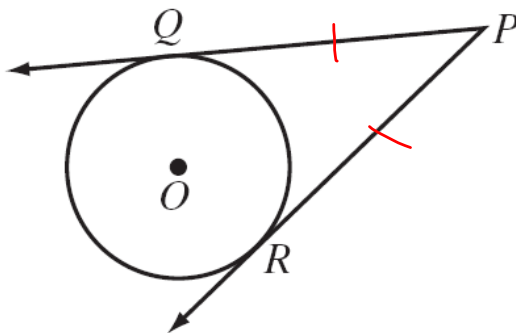
$$\boxed{PA = 8}$$

Mar 23-10:04 AM

Segments Formed by Two Tangents

Tangent segments drawn to a circle from an external point are congruent

"Hat Theorem"



$$\overline{PQ} \cong \overline{PR}$$

Mar 16-11:59 AM

Polygons Circumscribed about a Circle

Each side of the polygon is tangent to the circle

Circle O is inscribed in polygon $ABCD$

$\overline{AE} \cong \overline{AH}$

$\overline{BE} \cong \overline{BF}$

$\overline{HD} \cong \overline{DG}$

$\overline{GC} \cong \overline{FC}$

Mar 17-10:09 AM

1) If $AB = 3$ and $AC = 12$, find AF .

$3 \cdot 12 = x \cdot x$

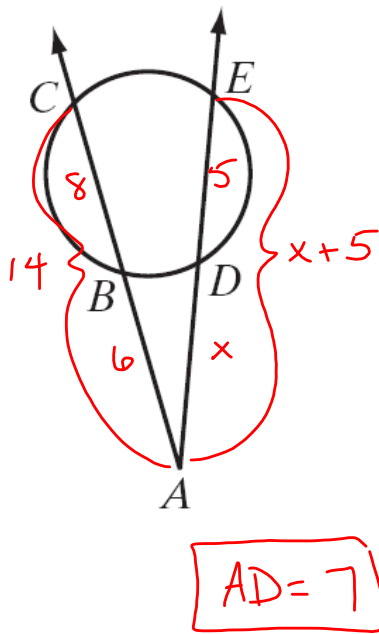
$36 = x^2$

$6 = x$

$AF = 6$

Mar 24-10:16 AM

2) If $AB = 6$, $BC = 8$, and $DE = 5$, find AD



$$6 \cdot 14 = x(x+5)$$

$$84 = x^2 + 5x$$

$$\begin{array}{r} -84 \\ \hline \end{array}$$

$$0 = x^2 + 5x - 84$$

$$0 = (x+12)(x-7)$$

$$x+12=0 \quad | \quad x-7=0$$

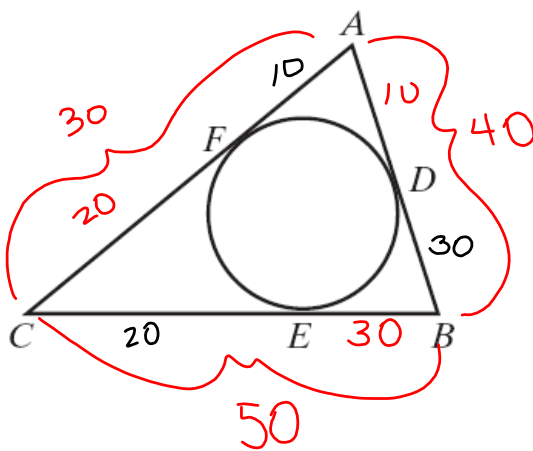
$$\cancel{x=-12} \quad | \quad x=7$$

Mar 24-10:14 AM

3) $\triangle ABC$ is circumscribed about circle O and D , E , and F are points of tangency.

If $AF = 10$, $CE = 20$, and $BD = 30$

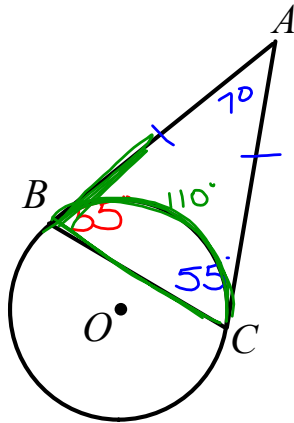
Find the perimeter of $\triangle ABC$



$$P = 120$$

Mar 17-10:10 AM

- 4) \overline{AB} and \overline{AC} are tangents to circle O and chord \overline{BC} is drawn. If $m\angle ABC = 55$, what is the $m\angle A$? What is the $m\widehat{BC}$?



$$m\angle A = 70^\circ$$

$$m\widehat{BC} = 110^\circ$$

Mar 17-9:59 AM