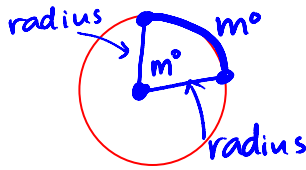
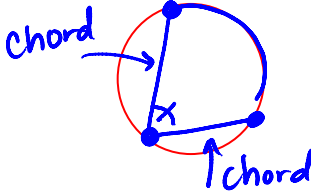
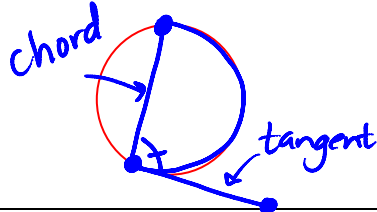
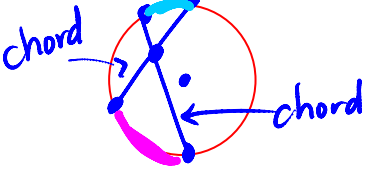
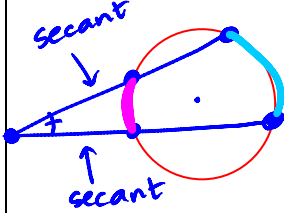
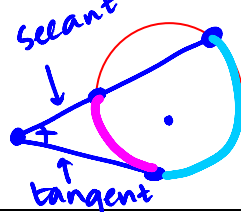
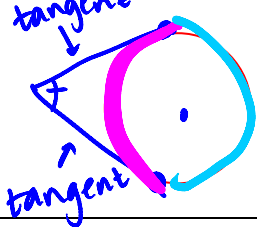
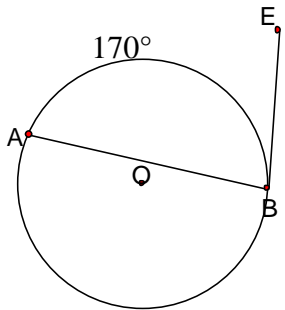


12.4 & 12.5 Angles in a Circle

Location of Vertex	Type	Example	Measure of the \angle
CENTER of CIRCLE	Central \angle		Central $\angle = \text{arc}$
ON the CIRCLE	inscribed \angle		$\text{on } \angle = \frac{1}{2} \text{ arc}$
	chord - tangent \angle		
INSIDE the CIRCLE	Chord-chord \angle		inside $\angle = \frac{\text{arc} + \text{arc}}{2}$
OUTSIDE the CIRCLE	Secant-secant \angle		$\text{outside } \angle = \frac{\text{arc} - \text{arc}}{2}$
	Secant-tangent \angle		
	tangent-tangent \angle		

Mixed Practice: Practice makes progress! Find x unless told otherwise.

- 1) Find $m\angle ABE$.



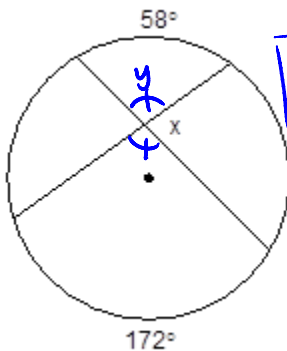
(chord-tangent \angle)

$$\boxed{ON \angle = \frac{1}{2} \text{ arc}}$$

$$\angle ABE = \frac{1}{2}(170)$$

$$\boxed{\angle ABE = 85^\circ}$$

- 2) Find the value of x



(Inscribed \angle)

$$\boxed{\text{inside } \angle = \frac{\text{arc} + \text{arc}}{2}}$$

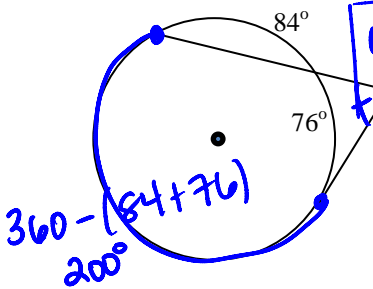
$$y = \frac{58 + 172}{2}$$

$$y = 115^\circ$$

$$\therefore x = 180 - 115$$

$$\boxed{x = 65^\circ}$$

- 3) Find $m\angle C$

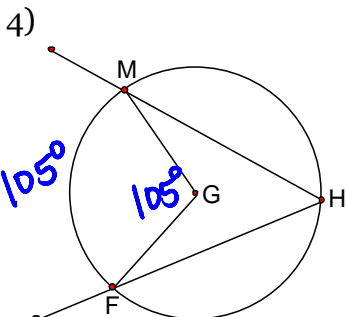


(Secant-tangent \angle)

$$\boxed{\text{outside } \angle = \frac{\text{arc} - \text{arc}}{2}}$$

$$\angle C = \frac{200 - 76}{2}$$

$$\boxed{\angle C = 62^\circ}$$



$$m\angle MGF = 105^\circ$$

Find $m\angle MHF$

secant-secant

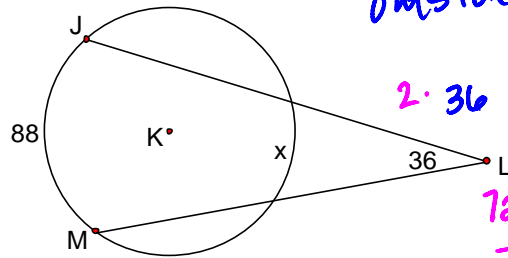
$$\boxed{ON \angle = \frac{1}{2} \text{ arc}}$$

$$\angle H = \frac{1}{2}(105)$$

$$\boxed{\angle H = 52.5^\circ}$$

- 5) Find the value of x.

Secant-secant \angle
outside $\angle = \frac{\text{arc} - \text{arc}}{2}$



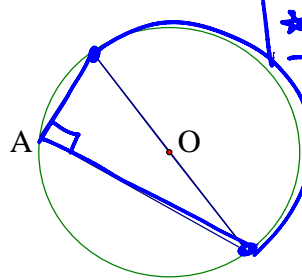
$$2 \cdot 36 = \frac{88 - x}{2}$$

$$72 = 44 - \frac{x}{2}$$

$$-16 = -\frac{x}{2}$$

$$\boxed{x = 32}$$

- 6) Find $\angle A$



$$\boxed{ON \angle = \frac{1}{2} \text{ arc}}$$

semicircle
in this
problem

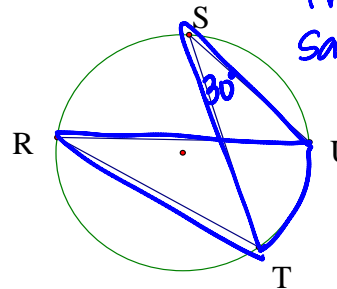
$$\angle A = \frac{1}{2}(180)$$

$$\boxed{m\angle A = 90^\circ}$$

- 7) $\angle TSU = 30^\circ$

Find: $\angle TRU$

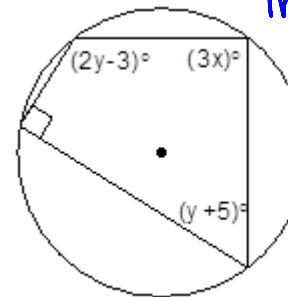
* Two inscribed \angle 's
that open up to the
same arc are \cong



$$\boxed{m\angle TRU = 30^\circ}$$

- 8) Find x and y

* A quadrilateral
inscribed (all \angle 's ON
the \odot) in a \odot has
opp \angle 's supplementary



$$3x = 90$$

$$\boxed{x = 30}$$

$$2y - 3 + y + 5 = 180$$

$$3y + 2 = 180$$

$$3y = 178$$

$$\boxed{y = 59.3}$$