**10-4**
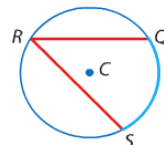
Inscribed Angles

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# Inscribed Angle

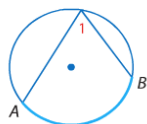*An angle that has a vertex ON the circle and CHORDS inside the circle.*



∠*QRS* is an inscribed angle.

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## Inscribed Angle Theorem

If an angle is inscribed in a circle, then the measure of the angle equals one half the measure of its intercepted arc.
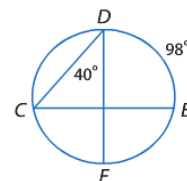
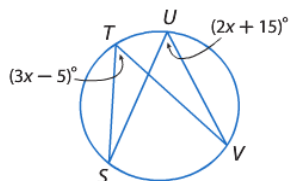$m\angle 1 = \frac{1}{2}m\widehat{AB}$ and $m\widehat{AB} = 2m\angle 1$



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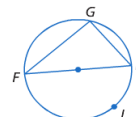Solve for the following:

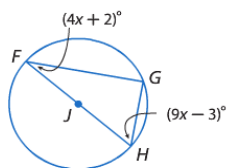1) $m\widehat{CF}$

2) $m\angle C$

## Solve for x and find angle T



Circle with points T, U, S, V. $(2x + 15)°$ at U, $(3x - 5)°$ at T.

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## Theorem 10.8

An inscribed angle of a triangle intercepts a diameter or semicircle if and only if the angle is a right angle.



If $\overset{\frown}{FJH}$ is a semicircle, then $m\angle G = 90$. If $m\angle G = 90$, then $\overset{\frown}{FJH}$ is a semicircle and $\overline{FH}$ is a diameter.

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## Solve for x



Circle with points F, G, H, J. $(4x + 2)°$ at F, $(9x - 3)°$ at H.

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## Theorem 10.9

If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.



Circle with inscribed quadrilateral L, M, N, K and center A.