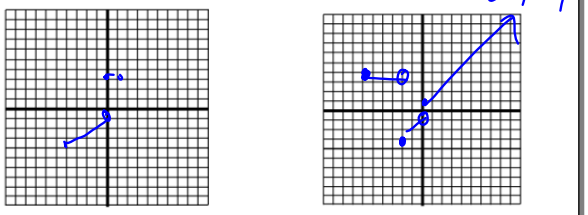
Review Starter 1

$$f(x)=\begin{cases}\frac{2}{3}x-1 \text{ if } -4\le x<0\\ 3 \text{ if } 0\le x<1\end{cases}$$

$$f(x)=\begin{cases}3 \text{ if } -6\le x<-2\\ 2x-1 \text{ if } -2\le x<0\\ x \text{ if } 0\le x\end{cases}$$

(-2,-5)
(0,-1)



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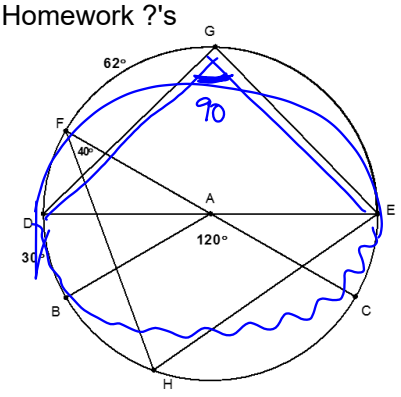
Homework ?'s



$\overset{\frown}{DB} = 30°$ and $\overset{\frown}{FG} = 62°$; $\angle HFC = 40°$ and $\angle BAC = 120°$

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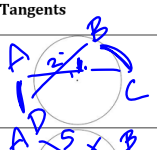
9.3 Properties of Chords and Tangents

Theorems:

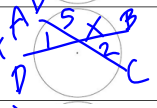
If two chords intersect inside a circle, then the measure of each angle formed is half the sum of the measures of the arcs intercepted by the angle and its vertical angle.

$m\angle 1 = \frac{1}{2}(m\overset{\frown}{AD} + m\overset{\frown}{BC})$



If two chords intersect inside a circle, then the product of the lengths of the segments of one chord is equal to the product of the lengths of the segments of the other chord.

$10 = 1 \cdot x$



$m\angle 2 = \frac{1}{2}(m\overset{\frown}{AB} + m\overset{\frown}{CD})$

$6 \cdot 4 = 3 \cdot x$

$24 = 3x$

$8 = x$

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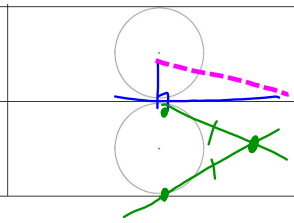
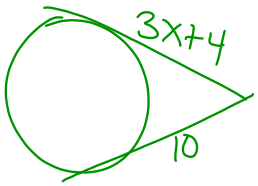
If a line is tangent to a circle, then it is perpendicular to the radius drawn and the point of tangency.

tan line ⊥ radius = 90°



If two segments from the same point outside a circle are tangent to the circle, then they are congruent.



$3x+4=10$

$-4 \quad -4$

$\frac{3x}{3} = \frac{6}{3}$

$x = 2$

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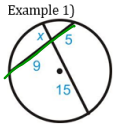
Example 1)



$9 \cdot 5 = 15x$

$45 = 15x$

$\frac{45}{15} = \frac{15x}{15}$

$3 = x$

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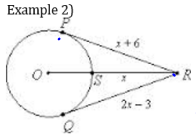
Example 2)



$x+6 = 2x-3$

$-x \quad +3 \quad -x \quad +3$

$9 = x$

$QR = 2(9)-3$

15

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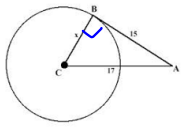
Example 3)



$17^2 = x^2 + 15^2$

$64 = x^2$

$8 = x$

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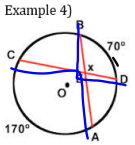
Example 4)



$x = \frac{1}{2}(70 + 170)$

$x = 120$

$m\angle X = (m\overset{\frown}{BD} + m\overset{\frown}{CA})\frac{1}{2}$

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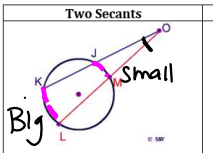
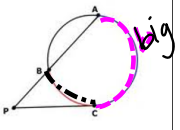
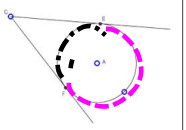
9.4 Circumscribed Angles

If two secants, a secant and a tangent, or two tangents intersect in the exterior of a circle, then the measure of the angle formed is one-half the positive difference of the measures of the intercepted arcs.

Two Secants	Secant and Tangent	Two Tangents
		
$m < O = \frac{1}{2}(mKL - mJM)$	$m < P = \frac{1}{2}(mAC - mBC)$	$m < C = \frac{1}{2}(mEBF - mEF)$

Small

Big

Big

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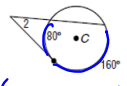
Find the measure of the indicated angle or arc below. Assume that lines that appear to be tangent are tangent.

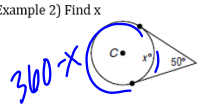
Example 1) Find $m < 2$



$\frac{1}{2}(160 - 80)$

$m\angle 2 = 40°$

Example 2) Find x



$360 - x$

$\frac{1}{2}(360 - x - x) = 50$

$\frac{1}{2}(360 - 2x) = 50$

$360 - 2x = 100$

$-360 \quad -360$

$-2x = -260$

$x = 130°$

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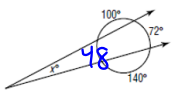
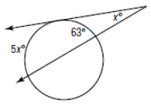
Example 3) Find x



$x° = \frac{1}{2}(72 - 48)$

$m\angle X = 12°$

Example 4) Find x



$x° = \frac{1}{2}(5x - 63)$

$2x = 5x - 63$

$-5x \quad -5x$

$\frac{-3x}{-3} = \frac{-63}{-3}$

$x = 21°$

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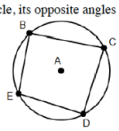
Theorem

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



$\angle B + \angle D = 180°$

$\angle C + \angle E = 180°$

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