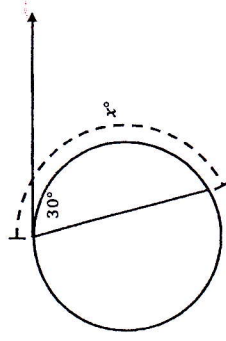


NOTES 10.6a - ANGLES FORMED BY SECANTS AND TANGENTS

THEOREM: If a secant and a tangent intersect at the point of tangency, then the measure of each angle formed is half the measure of its intercepted arc.

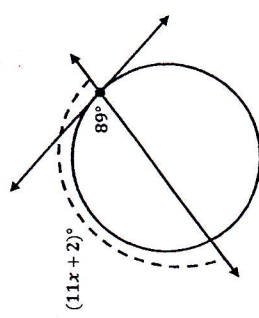
EXAMPLE 1: Find the value of 'x'.



$30 = \frac{x}{2}$

$x = 60$

EXAMPLE 2: Find the value of 'x'.



$89 = \frac{11x + 2}{2}$

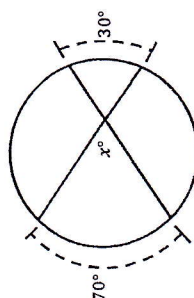
$178 = 11x + 2$

$176 = 11x$

$x = 16$

THEOREM: If two secants intersect in the interior of a circle, then the measure of the angle formed is half the sum of the measures of the arcs intercepted by the angle and its vertical angle.

EXAMPLE 3: Find the value of 'x'.



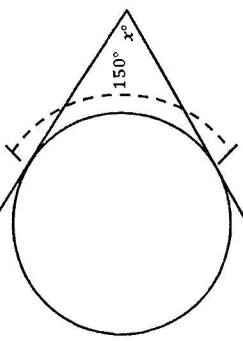
$x = \frac{70 + 30}{2}$

$x = \frac{100}{2}$

$x = 50$

THEOREM: 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 half the POSITIVE difference of the measures of the intercepted arcs.

EXAMPLE 4: Find the value of 'x'.

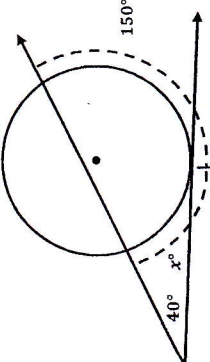


$x = \frac{210 - 150}{2}$

$x = \frac{60}{2}$

$x = 30$

EXAMPLE 5: Find the value of 'x'.



$m\angle = \frac{\text{big } \cap - \text{small } \cap}{2}$

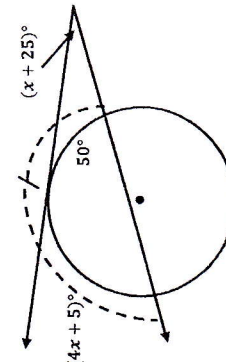
$40 = \frac{150 - x}{2}$

$80 = 150 - x$

$-70 = -x$

$x = 70$

EXAMPLE 6: Find the value of 'x'.



$x + 25 = \frac{4x + 5 - 50}{2}$

$2x + 50 = 4x - 45$

$95 = 2x$

$x = \frac{95}{2}$