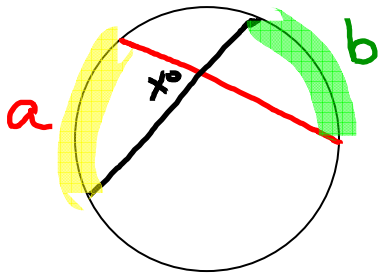
Notes for lesson 9-6: Other Angles

Draw a diagram as an example of each theorem.

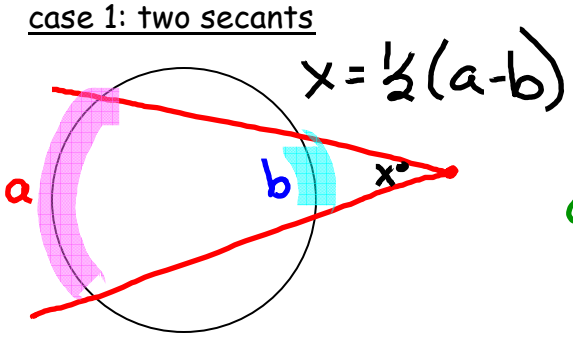
Theorem 9-9: The measure of an angle formed by two chords that intersect inside a circle is equal to half the sum of the measures of the intercepted arc.



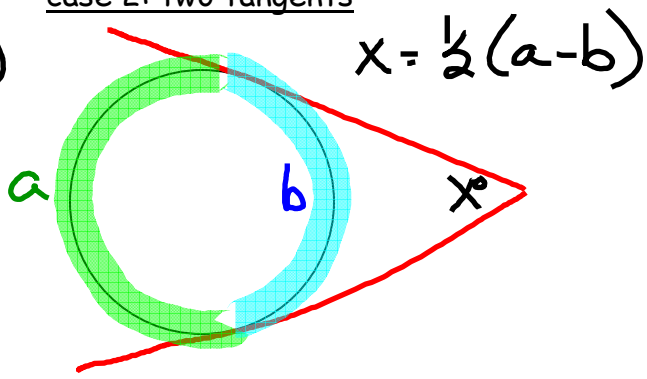
$x = \frac{1}{2}(a+b)$

Theorem 9-10: The measure of an angle formed by two secants, two tangents, or a secant and a tangent drawn from a point outside the circle is equal to half the difference of the measures of the intercepted arcs.

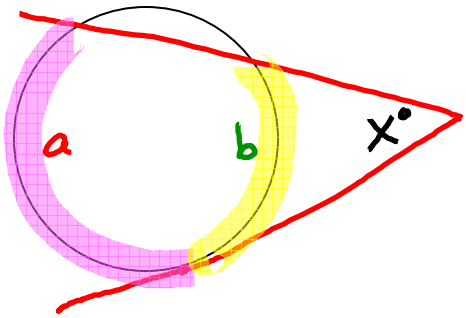
case 1: two secants



case 2: two tangents



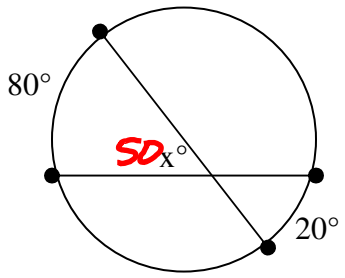
case 3: a secant and tan



$x = \frac{1}{2}(a-b)$

Find the value of x:

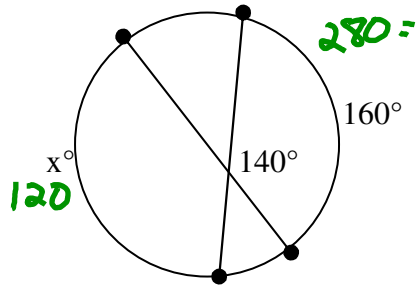
Ex 1:



Ex 2:

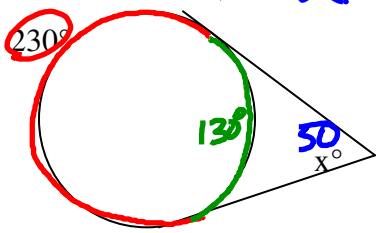
$140 = \frac{1}{2}(x + 160)$

$280 = x + 160$



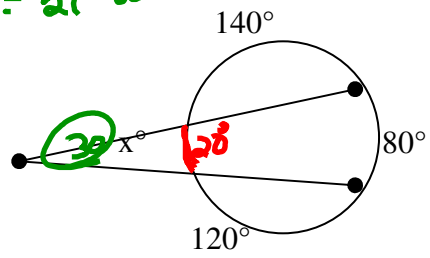
Ex 3:

$x = \frac{1}{2}(230 - 130)$

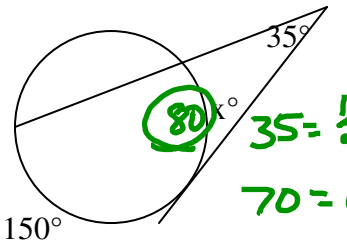


Ex 4:

$x = \frac{1}{2}(80 - 20)$



Ex 5:

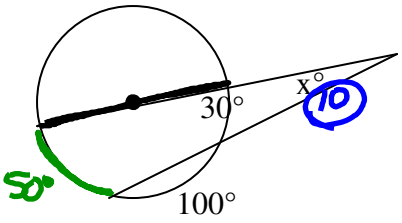


$35 = \frac{1}{2}(150 - x)$

$70 = 150 - x$

Ex 6:

$x = \frac{1}{2}(50 - 30)$



Given that segment BE is a diameter of circle O, measure of arc AB = 80°, measure of arc BC = 20°, and measure of arc DE = 50°.

m< 1 = 40° m< 6 = 65°

m< 2 = 50° m< 7 = 50°

m< 3 = 65° m< 8 = 20°

m< 4 = 25° m< 9 = 25°

m< 5 = 40° m< 10 = 50°