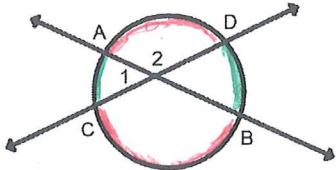
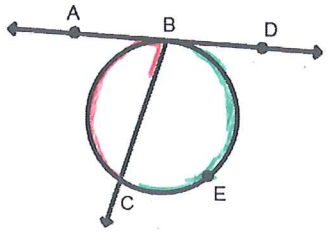
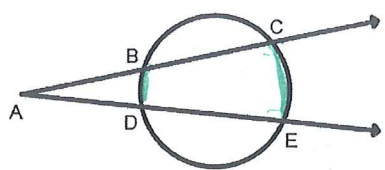
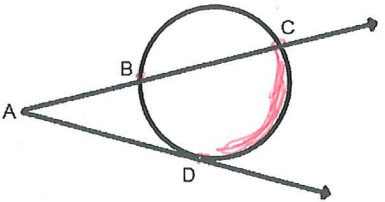
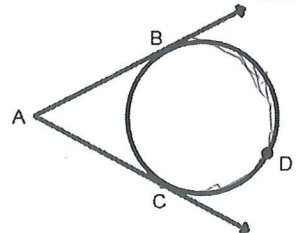


# Geometry - 10.6 - Secants, Tangents, and Angle Measures

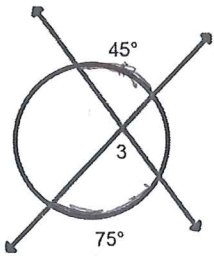


- A Secant is a line that intersects a circle at exactly 2 points.

INSIDE	<p>Two secants intersect in the interior of a circle...</p>  $m\angle 1 = \frac{1}{2}(m\widehat{AC} + m\widehat{BD})$ $m\angle 2 = \frac{1}{2}(m\widehat{AD} + m\widehat{BC})$	EXAMPLE 1
EDGE	<p>A secant and a tangent intersect at the point of tangency...</p>  $m\angle ABC = \frac{1}{2}m\widehat{BC}$ $m\angle CBD = \frac{1}{2}m\widehat{BEC}$	EXAMPLE 2
OUTSIDE	<p>Two secants intersect outside the circle...</p>  $m\angle A = \frac{1}{2}(m\widehat{CE} - m\widehat{BD})$	EXAMPLE 3
	<p>One secant and one tangent intersect outside the circle...</p>  $m\angle A = \frac{1}{2}(m\widehat{CD} - m\widehat{BD})$	EXAMPLE 4
	<p>Two tangents intersect outside the circle...</p>  $m\angle A = \frac{1}{2}(m\widehat{BDC} - m\widehat{BC})$	EXAMPLE 5

**Ex 1**

a) Find  $m\angle 3$ .

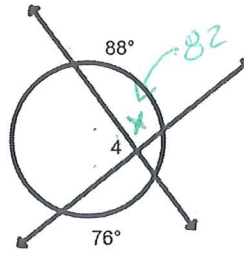


$$m\angle 3 = \frac{1}{2}(45 + 75)$$

$$= \frac{1}{2}(120)$$

$$= 60^\circ$$

b) Find  $m\angle 4$ .



$$\frac{1}{2}(88 + 76)$$

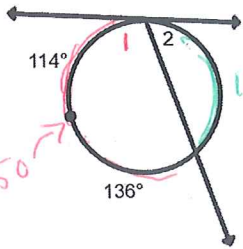
$$= \frac{1}{2}(164)$$

$$= 82$$

$$180 - 82$$

$$= 98$$

**Ex 2** - Find  $m\angle 2$ .



$$m\angle 1 = 125$$

$$180 - 125$$

$$= 55$$

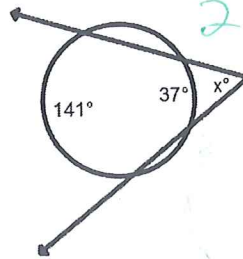
$$360 - 250$$

$$= 110$$

$$110/2$$

$$= 55$$

**Ex 3** - Find  $x$ .

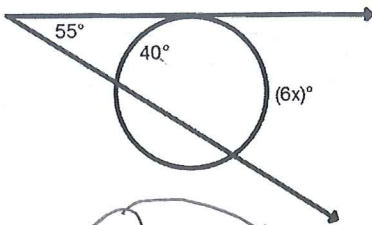


$$\frac{1}{2}(141 - 37)$$

$$= \frac{1}{2}(104)$$

$$= 52^\circ$$

**Ex 4** - Find  $x$ .



$$55^\circ = \frac{1}{2}(6x - 40)$$

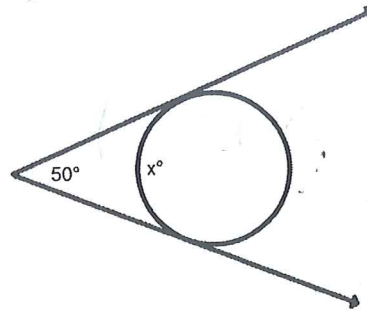
$$55^\circ = 3x - 20$$

$$+20$$

$$\frac{75}{3} = \frac{3x}{3}$$

$$25^\circ = x$$

**Ex 5** - Find  $x$ .



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

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

$$50 = 180 - x$$

$$-180 \quad -180$$

$$-130 = -x$$

$$130^\circ = x$$