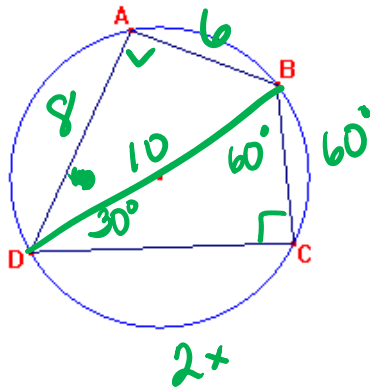


Geometry Honors
Review Chapter 10.5-10.8

- 1) Given: $\widehat{BC} : \widehat{BCD} = 1:3$
 $m\angle A = 90^\circ$
 $AB = 6, AD = 8$

Find: BC and CD



$$3x = 180$$

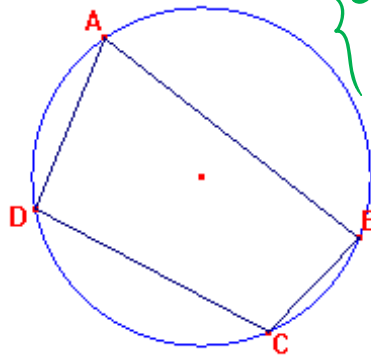
$$x = 60^\circ$$

$$\overline{BC} = 5$$

$$\overline{CD} = 5\sqrt{3}$$

- 2) Given: Diagram below
 $m\angle A = (3x - 10)^\circ$
 $m\angle B = (5y + 45)^\circ$
 $m\angle C = (5x + 6y)^\circ$
 $m\angle D = (6x - 10)^\circ$

Find: x and y



$$\begin{cases} 3x - 10 + 5x + 6y = 180 \\ 5y + 45 + 6x - 10 = 180 \end{cases}$$

$$\begin{cases} 8x + 6y = 190 \\ 6x + 5y = 145 \end{cases}$$

$$x = 20$$

$$y = 5$$

- 3) Can a quadrilateral with consecutive angles in the ratio of 2:4:4:6 be inscribed in a circle?

$$2x + 4x + 4x + 6x = 360$$

$$x = 22.5$$

$$45^\circ, 90^\circ, 90^\circ, 135^\circ$$

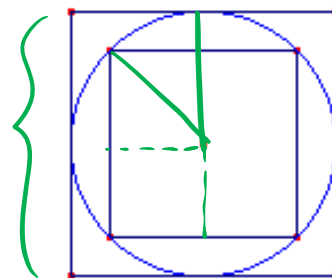
NO! opposite angles are NOT supplementary.

- 4) A circle is circumscribed around a square. A square is then circumscribed around the circle. What is the ratio of the area of the smaller square to the area of the larger square?

$$A_{\text{large}} = (2r)^2 = 4r^2$$

$$A_{\text{small}} = (\sqrt{2}r)^2 = 2r^2$$

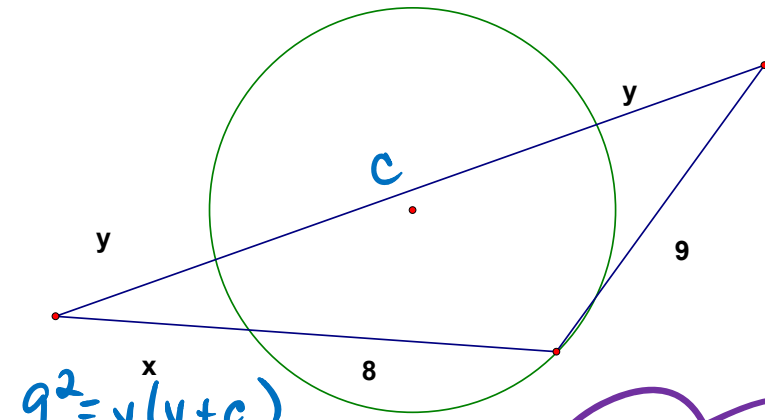
$$\text{ratio}_{\text{small:large}} = \frac{1}{2}$$



$$x\sqrt{2} = r$$

$$x = \frac{\sqrt{2}r}{2}$$

5) Find x in the picture. The segment that is 9 in length is tangent to the circle.



$$9^2 = y(y+c)$$

$$x \cdot (x+8) = y(y+c)$$

So... $9^2 = x(x+8)$

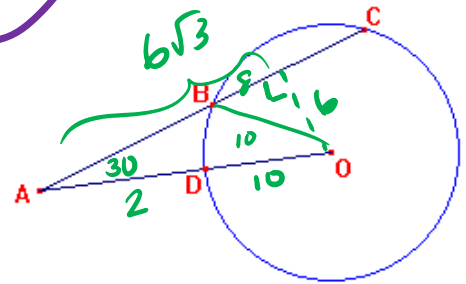
$$9^2 = (x+8) \cdot x$$

$$x^2 + 8x - 81 = 0$$

$$x = \frac{-8 \pm \sqrt{388}}{2} = \frac{-8 \pm 2\sqrt{97}}{2} = -4 \pm \sqrt{97}$$

only (+) case

6) Given: $m\angle A = 30^\circ$
chord BC is 6 units from the center of the circle
radius = 10

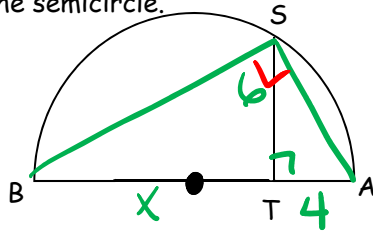


Find: AB

$$AB = 6\sqrt{3} - 8$$

7) Find the diameter of the semicircle.

$\overline{ST} \perp \overline{AB}$
 $TA = 4$
 $ST = 6$



$$6^2 = x \cdot 4$$

$$x = 9$$

$$\text{diameter} = 13$$

8) Given: $\widehat{AB} = 30^\circ$, $\widehat{BC} = 40^\circ$, $\widehat{CD} = 50^\circ$

Find: $m\angle X$, $m\angle Y$, $m\angle Z$

$$\angle X = 140^\circ$$

$$\angle Y = 30^\circ$$

$$\angle Z = 10^\circ$$

