

# 10.2

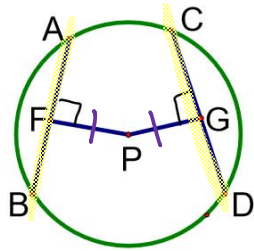
Friday, February 24, 2017 9:25 AM

A series of horizontal blue lines for writing, with a vertical red margin line on the left side.

Geometry Honors  
10.2 Congruent Chords

Name:

- 1) Given: Circle P,  $\overline{AB} \cong \overline{CD}$   
 $PF = \sqrt{x+4}$   
 $PG = \sqrt{2x-7}$   
 Find: PF



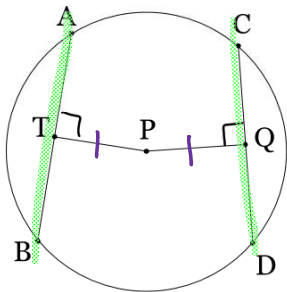
$$(\sqrt{x+4})^2 = (\sqrt{2x-7})^2$$

$$x+4 = 2x-7$$

$$11 = x$$

$$PF = \sqrt{15}$$

2)



- Given:  $\odot P, \overline{AB} \cong \overline{CD}$   
 $PT = \sqrt{x+5}$   
 $PQ = x-3$

Find: PT, PQ

$$(\sqrt{x+5})^2 = (x-3)^2$$

$$x+5 = x^2 - 6x + 9$$

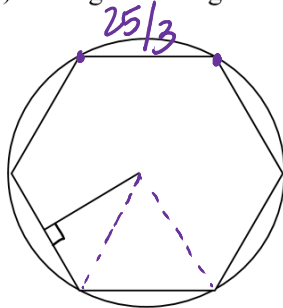
$$0 = x^2 - 7x + 4$$

$$x = \frac{7 \pm \sqrt{49 - 4 \cdot 1 \cdot 4}}{2}$$

$$= \frac{7 \pm \sqrt{33}}{2}$$

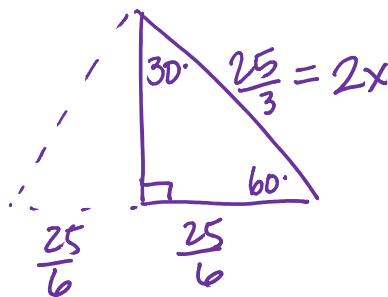
use (+) case  
 $PT = PQ = \frac{7 + \sqrt{33}}{2}$

- 3) A regular hexagon with a perimeter of 50 is inscribed in a circle. How far from the center is each side?



$$\text{side} = \frac{50}{6} = \frac{25}{3}$$

$$x = \frac{25}{6}$$

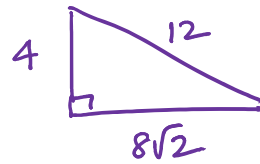
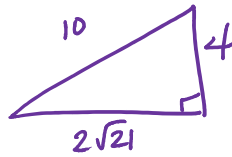
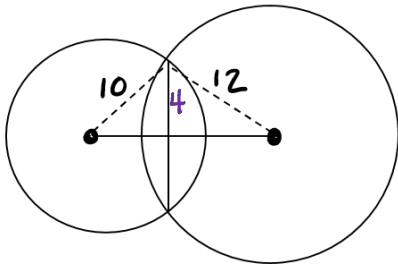


The center is  $\frac{25\sqrt{3}}{6}$  units from each side

$\bar{b}$   $\bar{b}$

(each side)

- 4) Two circles intersect. One has a radius of 10 inches and the other has a radius of 12 inches. If the circles have a common chord that is 8 inches long, how far apart are the centers of the circles?



centers  $2\sqrt{21} + 8\sqrt{2}$  units apart

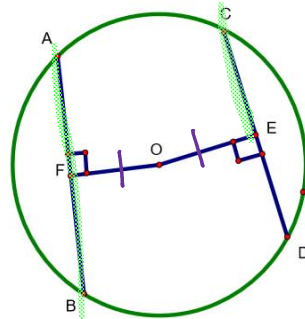
- 5) Given:  $\odot O$

$$AB = \sqrt{8x-2}$$

$$CE = \sqrt{3x-4}$$

$$OF = OE$$

Find AB



$$AB = 2 \cdot CE$$

$$(\sqrt{8x-2})^2 = (2\sqrt{3x-4})^2$$

$$8x-2 = 4(3x-4)$$

$$8x-2 = 12x-16$$

$$14 = 4x$$

$$\frac{14}{4} = x$$

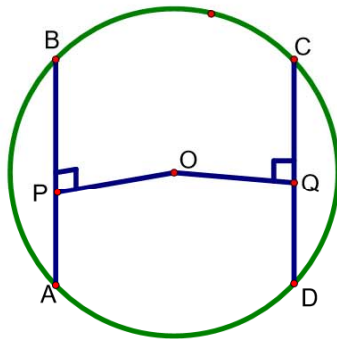
$$AB = \sqrt{26}$$

- 6) Given:  $\odot O, \overline{PO} \cong \overline{OQ}$

$$AB = x^2 - 2x + 3$$

$$CD = x + 7$$

Find AB



$$x^2 - 2x + 3 = x + 7$$

$$x^2 - 3x - 4 = 0$$

$$(x-4)(x+1) = 0$$

$$x = 4, -1$$

$$AB = 11, 6$$