

Geo Practice #24

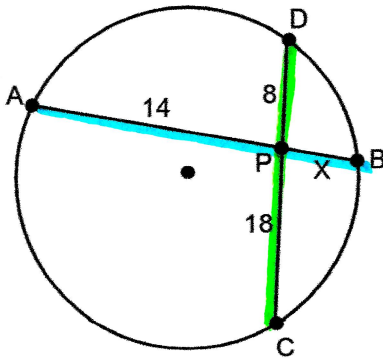
Sec 12-4 & 12-5

Wed & Thur, May 6/7, 2020

SOLUTIONS

Find the value of x in each problem. Round to the nearest hundredth. Diagrams are not drawn to scale.

1.



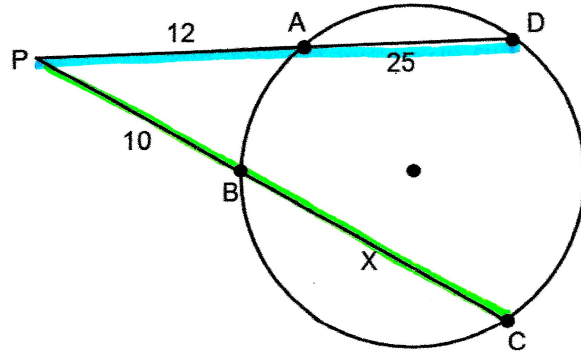
$$x = 10.29$$

$$(14)(x) = (8)(18)$$

$$14x = 144$$

$$x = \frac{144}{14} = 10.29$$

2.



$$x = 34.4$$

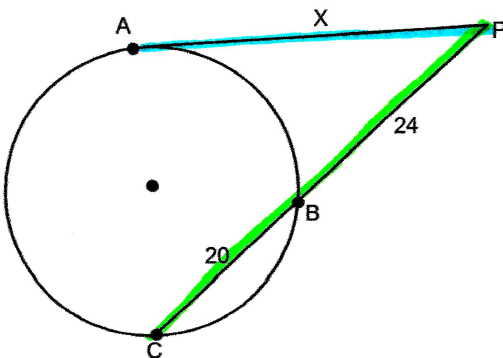
$$(12+25)(12) = (x+10)(10)$$

$$444 = 10x + 100$$

$$344 = 10x$$

$$x = \frac{344}{10} = 34.4$$

3.



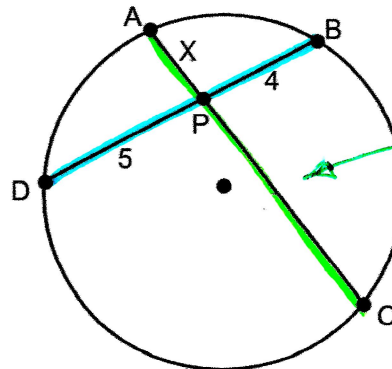
$$x = 32.50$$

$$x^2 = (20+24)(24)$$

$$\sqrt{x^2} = \sqrt{1056}$$

$$x = 32.50$$

4. $AC = 12$
~~AB~~ = 12



$$x = 2, 10$$

$$(4)(5) = (x)(12-x)$$

$$20 = 12x - x^2$$

$$x^2 - 12x + 20 = 0$$

$$(x-10)(x-2) = 0$$

$$x = 2, 10$$

BOTH ARE POSSIBLE ANSWERS

$$\begin{array}{r} +20 \\ -10 \quad -2 \\ -12 \end{array}$$

5. Use this equation of a circle: $(x-8)^2 + y^2 = 441$

a) State the coordinates of the center:

$$\sqrt{r^2} = \sqrt{441}$$

$$r = 21$$

b) State the radius of the circle.

Center: $(8, 0)$

radius = 21

$$(x-8)^2 + y^2$$

$$(x-h)^2 + (y-k)^2$$

$$\downarrow \quad \downarrow$$

$$h=8 \quad k=0$$

6. Use the given information to write the equation of each circle.

a) Center is the point $(-9, 3)$

radius = 16

$$r = 16$$

$$r^2 = 16^2 = 256$$

$$h, k$$

$$h = -9$$

$$k = 3$$

EQ:

$$(x - (-9))^2 + (y - 3)^2 = r^2$$

$$(x + 9)^2 + (y - 3)^2 = 256$$

b) Center is the point $(0, -5)$

diameter = 8

$$d = 8$$

$$r = d/2 = 4 \quad r^2 = 16$$

$$h, k$$

$$h = 0$$

$$k = -5$$

EQ:

$$(x - 0)^2 + (y - (-5))^2 = r^2$$

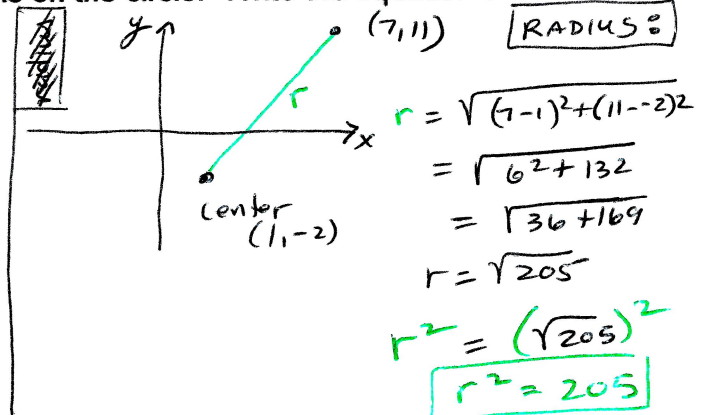
$$x^2 + (y + 5)^2 = 16$$

7. The center is the point $(1, -2)$ and the point $(7, 11)$ is on the circle. Write the equation of this circle.

EQ:

$$(x - 1)^2 + (y - (-2))^2 = r^2$$

$$(x - 1)^2 + (y + 2)^2 = 205$$



8. The endpoints of a diameter are $(5, -12)$ & $(13, -2)$. Write the equation of this circle.

EQ:

$$(x - 9)^2 + (y - (-7))^2 = r^2$$

$$(x - 9)^2 + (y + 7)^2 = 41$$

center is midpoint of endpoints of diameter

$$\text{center: } \left(\frac{5+13}{2}, \frac{-12+(-2)}{2} \right) = \left(\frac{18}{2}, \frac{-14}{2} \right)$$

$$\text{center: } (9, -7)$$

$$h = 9$$

$$k = -7$$

radius is distance from center, $(9, -7)$ to either endpoint of diameter, let's use $(5, -12)$

$$r = \sqrt{(9-5)^2 + (-7-(-12))^2} = \sqrt{4^2 + 5^2}$$

$$= \sqrt{16 + 25} = \sqrt{41}$$

$$r^2 = (\sqrt{41})^2$$

$$r^2 = 41$$