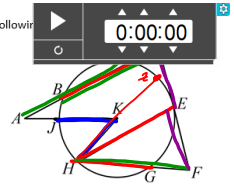


# Circle Segments Review!

1.) Using the diagram to the right with circle K, list one of each of the following

- a.) Radius  $\overline{KS}$  or  $\overline{KH}$
- b.) Chord  $\overline{HE}$  or  $\overline{BC}$  or  $\overline{HG}$
- c.) Secant segment  $\overline{AC}$  or  $\overline{BD}$  or  $\overline{HF}$
- d.) Tangent segment  $\overline{DE}$  or  $\overline{EF}$



2.) a.) If a circle has a circumference of 40, find the length of the radius.

$$C = 2\pi r \quad C = 40 = 2\pi r$$

$$C = \pi d \quad (2\pi) \cancel{2\pi}$$

b.) If a circle has an area of  $36\pi$ , find the circumference.

$$A = \pi r^2 \quad 36\pi = \pi r^2$$

$$\sqrt{36} = \sqrt{r^2} \quad \pm 6 = r$$

$$C = 2\pi r \quad C = 2\pi(6)$$

$$C = 37.70$$

$\overline{HE}$  is diameter  
its double the radius  
 $d = 2r$

Solve for x

$$a^2 + b^2 = c^2$$

$$15^2 + b^2 = 33^2$$

$$225 + b^2 = 1089$$

$$-225 \quad -225$$

$$\sqrt{b^2} = \sqrt{864}$$

$$b = 29.40$$

tangent / tangent

$$8x + 2 = 14x - 12$$

$$-8x \quad -8x$$

$$2 = 6x - 12$$

$$+12 \quad +12$$

$$\frac{126}{6} = \frac{6x}{6}$$

$$21 = x$$

3.) All 4 sides of quadrilateral QUAD are tangent to the circle. If QU = 21, QD = 17, and UA = 23. Find the length of segment DA.

tangents are congruent if from the same point

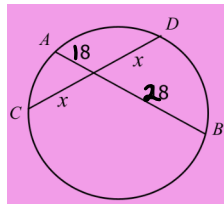
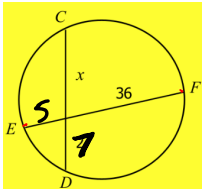
Hint:  $a + b + c + d = a + b + c + d$

$$18 + 5 = 12 + x$$

$$25 - 13 = 12$$

$$21.8 - 12$$

$P = 6 + 12 + 12 + 9 + 9 + 6$   
 $P =$



Chord / Chord

Part • part = part • part

$$5 \cdot 36 = x \cdot 7$$

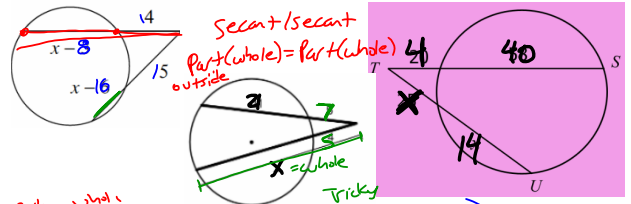
$$\frac{180}{7} = \frac{7x}{7}$$

$$x = 25.71$$
  

$$28 \cdot 18 = x \cdot x$$

$$\sqrt{504} = \sqrt{x^2}$$

$$22.4 = x$$



Secant / Secant

Part (whole) = Part (whole)

Part (whole) = Part (whole)

Part (whole) = Part (whole)

Tricky

$$14(x-8+14) = 15(x-16+15)$$

$$14(x+6) = 15(x-1)$$

$$14x + 84 = 15x - 15$$

$$-14x \quad -14x$$

$$84 = x - 15$$

$$+15 \quad +15$$

$$99 = x$$
  

$$7(21+7) = 5(x)$$

$$7(28) = 5x$$

$$\frac{196}{5} = \frac{5x}{5}$$

$$x = 39.2$$
  

$$4(40+4) = x(x+14)$$

$$4(44) = x^2 + 14x$$

$$176 = x^2 + 14x$$

$$-176 \quad -176$$

$$0 = x^2 + 14x - 176$$

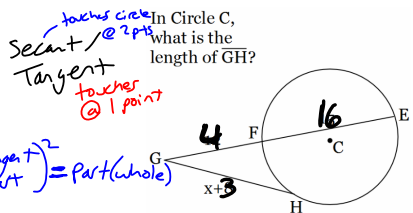
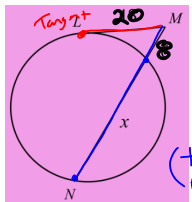
$$0 = (x-8)(x+22)$$

$$x-8=0 \quad x+22=0$$

$$+8 \quad +8$$

$$-22 \quad -22$$

$$x=8 \quad x=-22$$



Tangent

Secant @ 2 pts

Tangent touches @ 1 point

In Circle C, what is the length of GH?

(Tangent)<sup>2</sup> = Part (whole)

$$20^2 = 8(x+8)$$

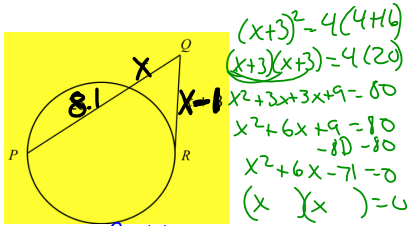
$$400 - 8x + 64 = 8x + 64$$

$$-8x \quad -8x$$

$$336 = 8x$$

$$\frac{336}{8} = \frac{8x}{8}$$

$$42 = x$$



$$(x+3)^2 = 4(4+16)$$

$$(x+3)(x+3) = 4(20)$$

$$x^2 + 3x + 3x + 9 = 80$$

$$x^2 + 6x + 9 = 80$$

$$-80 \quad -80$$

$$x^2 + 6x - 71 = 0$$

$$(x \quad ) (x \quad ) = 0$$
  

$$(x-1)^2 = x(x+8.1)$$

$$(x-1)(x-1) = x^2 + 8.1x$$

$$x^2 - 1x - 1x + 1 = x^2 + 8.1x$$

$$x^2 - 2x + 1 = x^2 + 8.1x$$

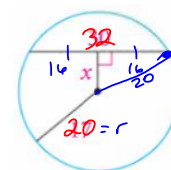
$$-x^2 \quad -x^2$$

$$-2x + 1 = 8.1x$$

$$+2x \quad +2x$$

$$\frac{1}{10.1} = \frac{10.1x}{10.1}$$

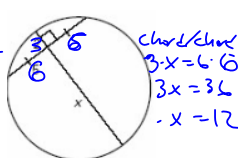
$$0.09 = x$$



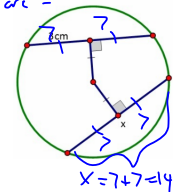
- distance to chord
- distance is always at 90°
- Chord is bisected
- Cut into 2 = parts

$$a^2 + b^2 = c^2$$

$$x^2 + 16^2 = 20^2$$



if chords are same distance away from center, they are =



$$x = 7 + 7 = 14$$