

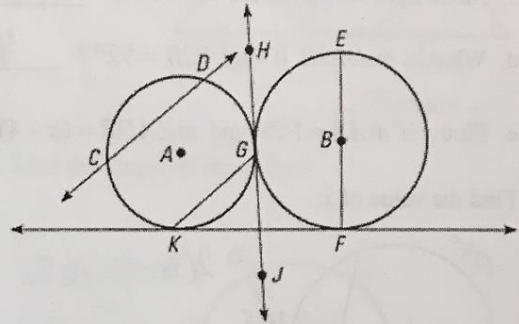
Name: KEY

Date: \_\_\_\_\_ Period: \_\_\_\_\_ Geometry w/ Trig

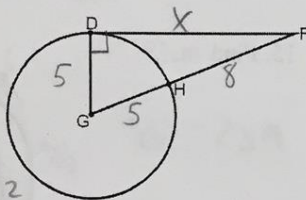
Unit 8 Circles Review

Match the line, segment, or point with the term that best describes it.

- |                             |                                       |
|-----------------------------|---------------------------------------|
| <u>C</u> 1. $\overline{EF}$ | <del>A.</del> Chord                   |
| <u>D</u> 2. $G$             | <del>B.</del> Radius                  |
| <u>F</u> 3. $\overline{HJ}$ | <del>C.</del> Diameter                |
| <u>B</u> 4. $\overline{BF}$ | <del>D.</del> Point of Tangency       |
| <u>G</u> 5. $A$             | <del>E.</del> Common External Tangent |
| <u>E</u> 6. $\overline{KF}$ | F. Common Internal Tangent            |
| <u>A</u> 7. $\overline{GK}$ | <del>G.</del> Center                  |



8. Given that  $\overline{DF}$  is a tangent,  $DG = 5$  in. and  $HF = 8$  in., find  $DF$ .



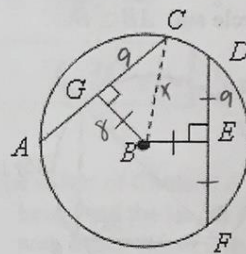
$$5^2 + x^2 = 13^2$$

$$25 + x^2 = 169$$

$$x^2 = 144$$

$$x = 12$$

9.  $BG = 8$  cm. and  $DF = 18$  cm. Find  $BC$ . Round to the nearest hundredth.



$$8^2 + 9^2 = x^2$$

$$64 + 81 = x^2$$

$$145 = x^2$$

$$x = \sqrt{145}$$

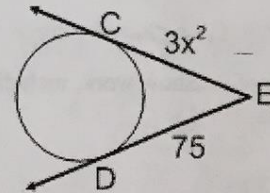
$$x \approx 12.04 \text{ cm}$$

10. Find  $x$  if  $\overline{EC}$  and  $\overline{ED}$  are tangents.

$$3x^2 = 75$$

$$x^2 = 25$$

$$x = 5$$



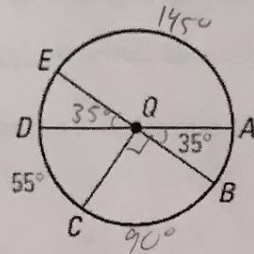
11.  $\overline{AD}$  and  $\overline{BE}$  are diameters. Find the indicated measure for each of the following and label as major arc, minor arc, or semicircle.

a.  $m\widehat{AE}$   $145^\circ$   
minor

b.  $m\widehat{ED}$   $35^\circ$   
minor

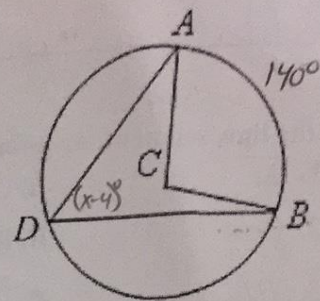
c.  $m\widehat{BCE}$   $180^\circ$   
Semicircle

d.  $m\widehat{ADE}$   $215^\circ$   
major



12. Given circle C, answer the following questions.

- a. Is  $\angle ADB$  a central angle or an inscribed angle? inscribed
- b. Is  $\angle ACB$  a central angle or an inscribed angle? central
- c. Name the intercepted arc of  $\angle ADB$ .  $\widehat{AB}$
- d. What is  $m\angle ADB$  if  $m\angle ACB = 92^\circ$ ?  $46^\circ$
- e. Find  $x$  if  $m\widehat{AB} = 140^\circ$  and  $m\angle ADB = (x-4)^\circ$ ? 74

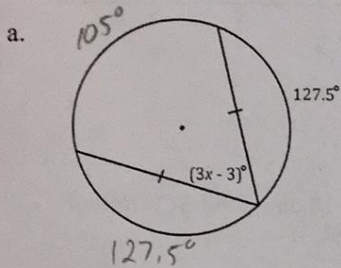


$$2(x-4) = 140$$

$$x-4 = 70$$

$$x = 74$$

13. Find the value of  $x$ .

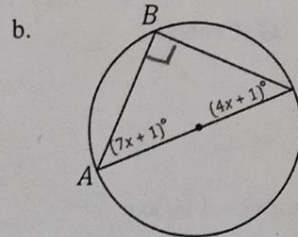


$$2(3x-3) = 105$$

$$6x-6 = 105$$

$$6x = 111$$

$$x = 18.5$$



$$7x+1 + 4x+1 = 90$$

$$11x+2 = 90$$

$$11x = 88$$

$$x = 8$$

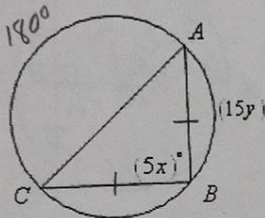
14.  $\overline{AC}$  is the diameter of the circle and  $\overline{AB} \cong \overline{BC}$ . Find  $x$  and  $y$ .

$$5x = 90$$

$$15y = 90$$

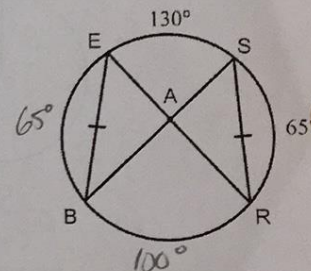
$$x = 18$$

$$y = 6$$



15. Find  $m\angle S$ .

$$m\angle S = 50^\circ$$



16. a. What can you conclude about  $\angle BAC$  and  $\angle BDC$ ? Explain.

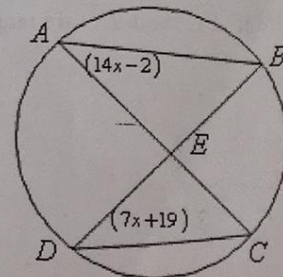
They are congruent because they share same intercepted arc.

b. Find the value of  $x$ . Show work, including an algebraic equation.

$$14x-2 = 7x+19$$

$$7x = 21$$

$$x = 3$$



17. a. Using the diagram to the right, complete the following theorem:

If a quadrilateral is inscribed in a circle, then its opposite angles are Supplementary.

b. Find the values of  $r$ ,  $s$ , and  $t$ .

$$2r+10+s+4=180$$

$$t = \frac{1}{2}(32+94)$$

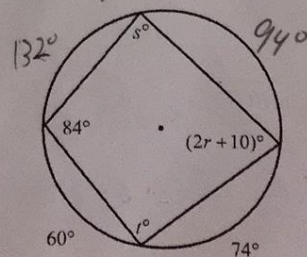
$$s = \frac{1}{2}(60+74)$$

$$2r = 86$$

$$t = 113$$

$$s = 67$$

$$r = 43$$



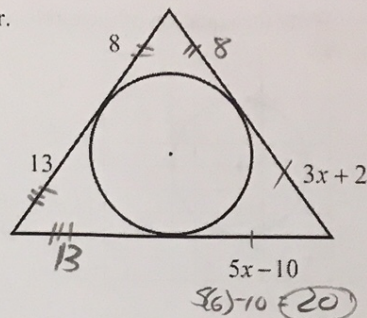


18. The triangle is circumscribed around the circle. Solve for  $x$  and find the perimeter.

$$3x+2 = 5x-10 \quad 2(20) + 2(8) + 2(13) = \boxed{82 \text{ units}}$$

$$12 = 2x$$

$$\boxed{x=6}$$



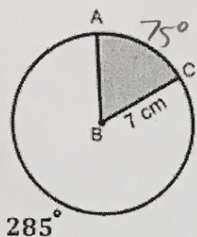
For #19-23, round to the nearest hundredth.

19. Find the area of the shaded sector.

$$\frac{x}{49\pi} = \frac{75}{360}$$

$$360x = 3675\pi$$

$$\boxed{x = 32.07 \text{ cm}^2}$$



20. Find the length of the radius.

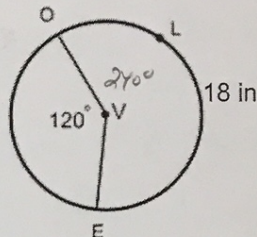
$$\frac{18}{C} = \frac{240}{360}$$

$$6480 = 240C$$

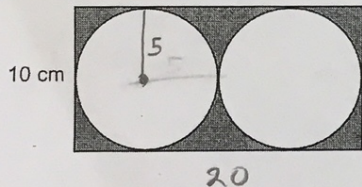
$$C = 27$$

$$27 = 2\pi r$$

$$\boxed{r = 4.30 \text{ in}}$$



21. Find the area of the shaded region.



$$(10)(20) - 2(5)^2\pi$$

$$(200 - 50\pi) \text{ cm}^2$$

$$42.92 \text{ cm}^2$$

22. The radius of Circle C is 16 units  $d=32$  long. Find the length of the arc in Circle C with a measure of  $270^\circ$ .

$$\frac{x}{32\pi} = \frac{270}{360}$$

$$360x = 8640\pi$$

$$x = \boxed{24\pi \text{ units}}$$

$$x = 75.40$$

23. Find the circumference of a circle with an area of  $A = 50\pi \text{ in}^2$ .

$$50\pi = \pi r^2$$

$$50 = r^2$$

$$r = \sqrt{50}$$

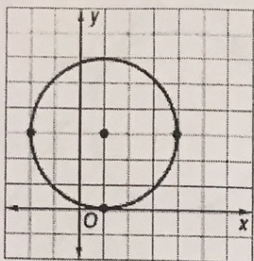
$$r = 5\sqrt{2}$$

$$C = 2(5\sqrt{2})\pi$$

$$C = \boxed{10\sqrt{2}\pi \text{ in}}$$



24. Write the equation of the circle graphed below.



$$C(1, 3)$$

$$r = 3$$

$$(x-1)^2 + (y-3)^2 = 9$$

25. Write the equation of the circle that has its center at (3, -2) and passes through (3, 0).

$$r = \sqrt{(3-3)^2 + (-2-0)^2}$$

$$r = \sqrt{0+4}$$

$$r = \sqrt{4}$$

$$r = 2$$

$$(x-3)^2 + (y+2)^2 = 4$$

26. Write the equation of the circle  $x^2 - 12x + y^2 + 6y = 19$  in standard form. Then identify the center and radius.

$$x^2 - 12x + \underline{36} + y^2 + 6y + \underline{9} = 19 + \underline{36} + \underline{9}$$

$$(x-6)^2 + (y+3)^2 = 64$$

$$\text{Center: } (6, -3)$$

$$r = 8$$

27. Write the equation of the circle  $x^2 + y^2 + 8x - 2 = 0$  in standard form. Then identify the center and radius. Leave the radius in simplest form.

$$x^2 + 8x + y^2 = 2$$

$$x^2 + 8x + \underline{16} + y^2 = 2 + \underline{16}$$

$$(x+4)^2 + y^2 = 18$$

$$\text{Center } (-4, 0)$$

$$r = \sqrt{18} = 3\sqrt{2}$$