

**Unit 7 Assessment Review: Part 1 (Circles)**

Name: \_\_\_\_\_

U7 L1: (\_\_\_\_\_/15) I can derive the equation of a circle in the coordinate plane and identify key features, such as the center and the radius, including transformations.

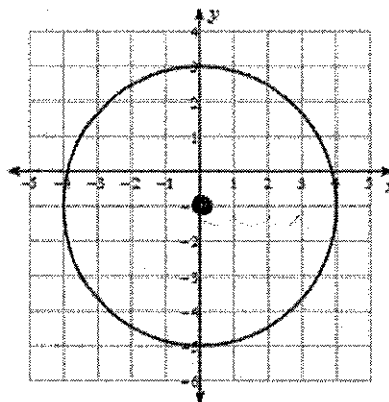
1)  $(x - 9)^2 + (y - 8)^2 = 16$

Radius = 4

Center = (9, 8)

2) Equation of Circle:

$x^2 + (y+1)^2 = 16$



center:  
(0, -1)  
r = 4

3) Center: (-6, 12) Radius: 169

Equation of Circle:

$(x+6)^2 + (y-12)^2 = 13$

4)  $x^2 + 261 + y^2 - 6y + 32x = 0$

$(x^2 + 32x + 256) + (y^2 - 6y + 9) = -261 + 256 + 9$

$(\frac{32}{2})^2 = 256$

$(x+16)^2 + (y-3)^2 = 9$

Equation of Circle:

$(x+16)^2 + (y-3)^2 = 9$

Center = (-16, 3) Radius = 3

5)  $32y + 8x + x^2 + y^2 = -263$

$(x^2 + 8x + 16) + (y^2 + 32y + 256) = -263 + 16 + 256$

$(\frac{8}{2})^2 = 16$      $(\frac{32}{2})^2 = 256$

$(x+4)^2 + (y+16)^2 = 9$

Equation of Circle:

$(x+4)^2 + (y+16)^2 = 9$

Center = (-4, -16) Radius = 3

6) Write the equation of a circle with a center at (-1, 9) if the point (3, 5) is also on the circle:

-1 to 3 = 4

$4^2 + 4^2 = r^2$

$32 = r^2$

9 to 5 = 4

Equation of Circle:  $(x+1)^2 + (y-9)^2 = 32$

7) Write the equation of a circle with a center at (8, -2) if the point (-1, 6) is also on the circle:

8 to -1 = 9

$9^2 + 8^2 = r^2$

$145 = r^2$

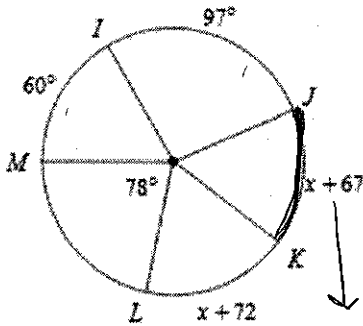
-2 to 6 = 8

Equation of Circle:  $(x-8)^2 + (y+2)^2 = 145$

U7 L2: (\_\_\_\_/20) I can understand and apply theorems about circles to solve problems.

- I can understand the relationships between angles and circles.
- I can understand the relationships between segments and circles.

8)  $m\widehat{JK} = 60^\circ$



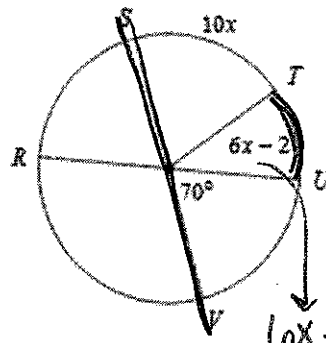
$$2x + 374 = 360$$

$$2x = -14$$

$$x = -7$$

$$-7 + 67 = 60^\circ$$

9)  $m\widehat{TU} = 40^\circ$



$$16x + 68 = 180$$

$$16x = 112$$

$$x = 7$$

$$6x - 2 = 6(7) - 2 = 40^\circ$$

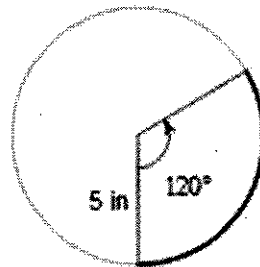
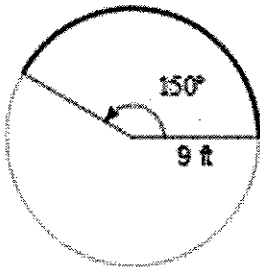
Find the arc length and sector area for the bolded portion of the circles shown below. Leave your answers in terms of  $\pi$ , in the most simplified fraction form:

10) Arc Length =  $\frac{150}{360} \cdot 2\pi \cdot 9 = \frac{15}{2}\pi$

Sector Area =  $\frac{150}{360} \cdot \pi \cdot 9^2 = \frac{135}{4}\pi$

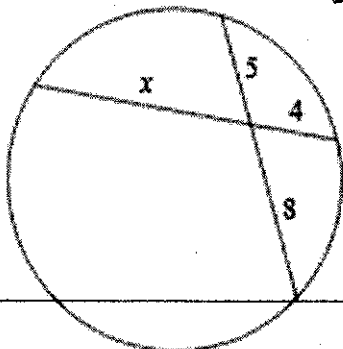
11) Arc Length =  $\frac{120}{360} \cdot 2\pi \cdot 5 = \frac{10}{3}\pi$

Sector Area =  $\frac{120}{360} \cdot \pi \cdot 5^2 = \frac{25}{3}\pi$



Find the value of  $x$  in the circles below:

12)  $x = 10$

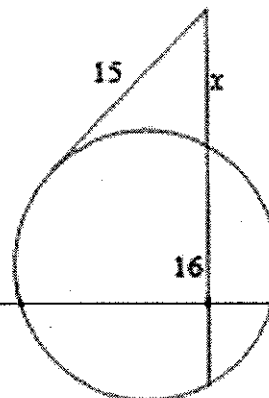


$$4 \cdot x = 5 \cdot 8$$

$$4x = 40$$

$$x = 10$$

13)  $x = 9$



$$x(x+16) = 15(15)$$

$$x^2 + 16x = 225$$

$$x^2 + 16x - 225 = 0$$

$$(x+25)(x-9) = 0$$

$$x = -25 \quad x = 9$$