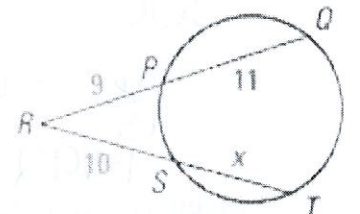
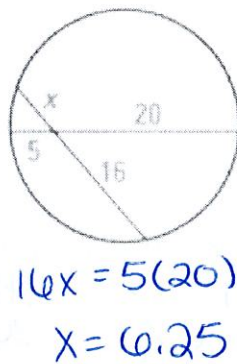
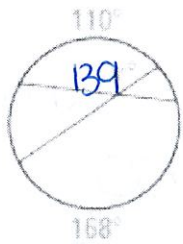
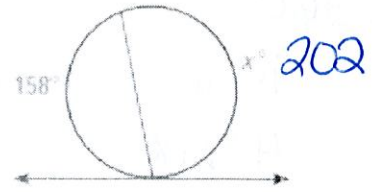
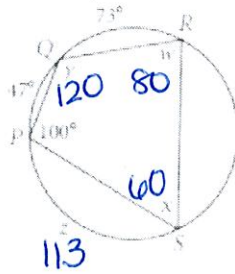
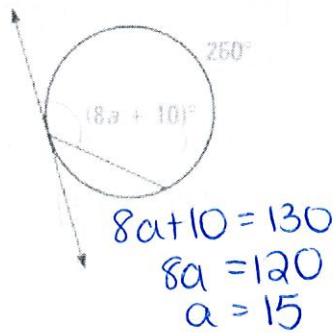
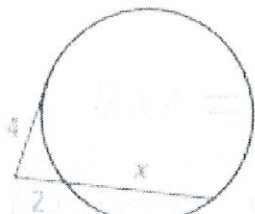


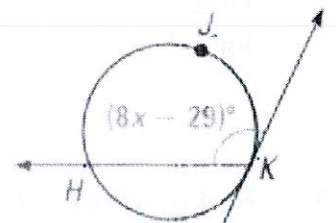
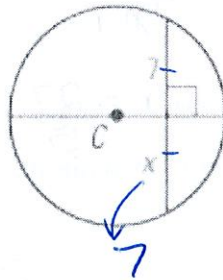
7. Solve for the value of the variable(s) in all of the diagrams below. (Lines that appear tangent to the circle are tangent, angles that appear to be inscribed are inscribed).



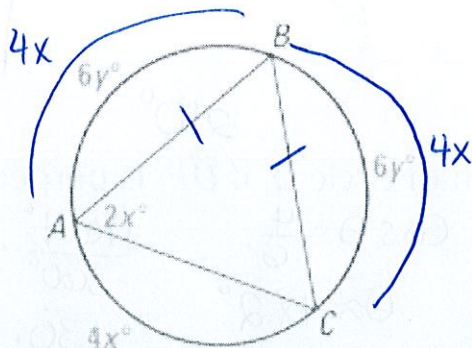
$9(20) = 10(x+10)$
 $180 = 10x + 100$
 $80 = 10x$
 $8 = x$
 $m\widehat{IJK} = (10x + 50)^\circ$



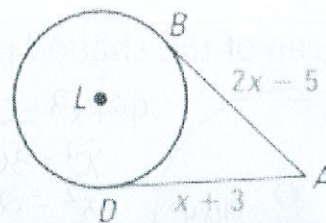
$4^2 = 2(2+x)$
 $16 = 4 + 2x$
 $12 = 2x$
 $6 = x$



$\frac{10x + 50}{2} = 8x - 29$
 $5x + 25 = 8x - 29$
 $54 = 3x$
 $18 = x$



$4x = 120$
 $x = 30$
 $6y = 4x$
 $6y = 120$
 $y = 20$



$2x - 5 = x + 3$
 $x = 8$

11. Write the equations (in standard form) for the circles described below:

The center is (1, 2), a point on the circle is (4, 6).

$$\begin{aligned} (4-1)^2 + (6-2)^2 &= r^2 \\ (3)^2 + (4)^2 &= r^2 \\ 9+16 &= r^2 \quad r^2 = 25 \end{aligned}$$

$$(x-1)^2 + (y-2)^2 = 25$$

Center (-6, 0), radius $\sqrt{10}$

$$(x+6)^2 + y^2 = 10$$

The center is (-5, 3) and the diameter is 8.

$$(x+5)^2 + (y-3)^2 = 16$$

A circle whose diameter has endpoints (-5, 2) and (1, -1)

$$(x+2)^2 + (y-\frac{1}{2})^2 = \frac{45}{4}$$

$$C(-2, .5)$$

$$r = \frac{\sqrt{(1-(-5))^2 + (-1-2)^2}}{2} = \frac{3\sqrt{5}}{2}$$

A circle with a center at (4, 5) that is tangent to the y-axis.

$$(x-4)^2 + (y-5)^2 = 16$$

12. **MULTIPLE CHOICE** What is the standard form of the equation of a circle with center (-3, 1) and radius 2?

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

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

C $(x-3)^2 + (y-1)^2 = 4$

D $(x+3)^2 + (y-1)^2 = 4$

13. **MULTIPLE CHOICE** The center of a circle is (-3, 0) and its radius is 5. Which point does *not* lie on the circle?

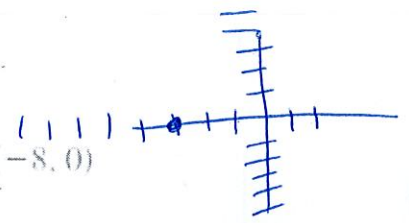
A (2, 0)

B (0, 4)

C (-3, 0)

D (-3, -5)

E (-8, 0)



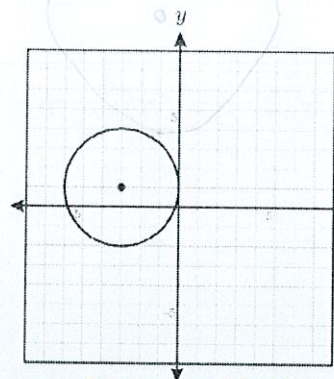
14. The equation of a circle is given as $2x^2 + 2y^2 + 4x + 12y + 6 = 0$. What are the center, C, and the radius, r, of the circle?

A $C(-1, -3); r = \sqrt{7}$ B. $C(-1, -3); r = 7$

C. $C(1, 3); r = \sqrt{7}$ D. $C(1, 3); r = 7$

$$\begin{aligned} x^2 + y^2 + 2x + 6y + 3 &= 0 \\ x^2 + 2x + 1 + y^2 + 6y + 9 &= -3 + 1 + 9 \\ (x+1)^2 + (y+3)^2 &= 7 \end{aligned}$$

15. Which of the following is an equation for the circle shown?



A $x^2 + y^2 + 6x - 2y + 1 = 0$

B. $x^2 + y^2 - 6x - 2y + 1 = 0$

C. $x^2 + y^2 + 6x + 2y + 7 = 0$

D. $x^2 + y^2 - 6x - 2y + 7 = 0$

$$\begin{aligned} (x+3)^2 + (y-1)^2 &= 9 \\ x^2 + 6x + 9 + y^2 - 2y + 1 &= 9 \end{aligned}$$