

Name: Key

9.11 HW Circles Review—Additional Problems

1. A circle has a circumference of 15π units. If the center of this circle is located at $(-1, 5)$, what is the equation of this circle in standard form?

$$(x+1)^2 + (y-5)^2 = 56.25$$

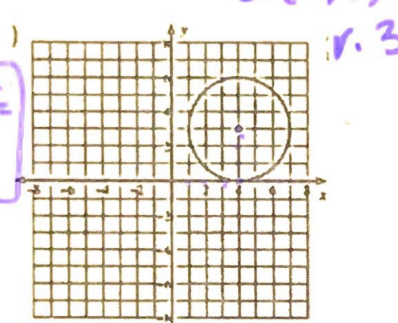
2. A circle has an equation of $x^2 + y^2 - 10y + 15 = 0$. What is the center and radius of this circle?

$$x^2 + y^2 - 10y + 25 = -15 + 25$$

$$x^2 + (y-5)^2 = 10$$

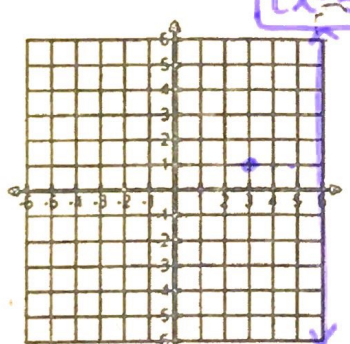
C: $(0, 5)$
r: $\sqrt{10}$

3. What is the equation of the circle in the following graph in standard form?



$$(x-4)^2 + (y-3)^2 = 9$$

4. What is the equation of a circle with a center of $(3, 1)$ and that is tangent to $x = 6$?



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

5. A circle has endpoints of $(5, 7)$ and $(2, 7)$. What is the equation of this circle in standard form?

$$C: \left(\frac{5+2}{2}, \frac{7+7}{2}\right) = \left(\frac{7}{2}, 7\right)$$

$$r: \sqrt{(2-5)^2 + (7-7)^2} = \sqrt{9+0} = 3$$

$$(x-\frac{7}{2})^2 + (y-7)^2 = 9$$

6. What is the diameter of a circle with the equation $x^2 + y^2 + 4x - 2y + 1 = 0$?

$$x^2 + 4x + 4 + y^2 - 2y + 1 = -1 + 1 + 4$$

$$(x+2)^2 + (y-1)^2 = 4 \quad r=2 \quad d=4$$

7. A circle has a diameter of 12 units. The circle has a center of $(0, 0)$. What is the equation of this circle in standard form?

$$x^2 + y^2 = 36$$

8. What is the circumference of a circle with a center of $(4, 3)$ and that passes through the point $(7, -1)$?

$$r = \sqrt{(7-4)^2 + (-1-3)^2} = \sqrt{9+16} = 5$$

$$C = 10\pi$$

9. What is the slope of the line perpendicular to $y = \frac{2}{3}x + 8$?

$$m = -\frac{3}{2}$$

10. What is the equation of the line that passes through points $(2, 5)$ and $(-2, 4)$?

$$y = \frac{1}{4}x + 4.5$$

$$\frac{4-5}{-2-2} = \frac{-1}{-4} = \frac{1}{4}$$

$$4 = \frac{1}{4}(-2) + b$$

$$4 = -.5 + b$$

$$4.5 = b$$

11. Partition a segment with endpoints $(-2, 3)$ and $(10, 6)$ at a ratio of 1:2.

$$-2 + \frac{1}{3}(10+2) = 2$$

$$3 + \frac{1}{3}(6-3) = 4$$

$$(2, 4)$$

12. A segment has an endpoint of $(3, 6)$ and a midpoint of $(-4, 12)$. What is the coordinate for the other endpoint of this segment?

$$3 = \frac{-4+x}{2} \cdot 2$$

$$6 = -4+x$$

$$10 = x$$

$$6 = \frac{12+y}{2} \cdot 2$$

$$12 = 12+y$$

$$0 = y$$

$$(10, 0)$$

$$(-11, 18)$$