10-3 Practice

Circles

Write an equation for the circle that satisfies each set of conditions.

1. center $(-4, 2)$, radius 8 units

$(x+4)^2 + (y-2)^2 = 64$

2. center $(0, 0)$, radius 4 units

$x^2 + y^2 = 16$

3. center $\left(-\frac{1}{4}, -\sqrt{3}\right)$, radius $5\sqrt{2}$ units

$\left(x+\frac{1}{4}\right)^2 + (y+\sqrt{3})^2 = 50$

4. center $(2.5, 4.2)$, radius 0.9 units

$(x-2.5)^2 + (y-4.2)^2 = .81$

5. endpoints of a diameter at $(-2, -9)$ and $(0, -5)$ [#5]
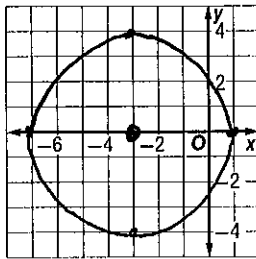
#6 $(x+9)^2 + (y+12)^2 = 74$

$d = 2\sqrt{5}$

6. center at $(-9, -12)$, passes through $(-4, -5)$ $(x+1)^2 + (y+7)^2 = 5$

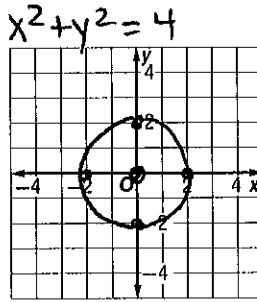**7.** center at $(-6, 5)$, tangent to x-axis $(x+6)^2 + (y-5)^2 = 25$
$(r = 5)$

#10 $(x^2+2x+1)+(y^2+6y+9)$
$= 26 + 1 + 9$

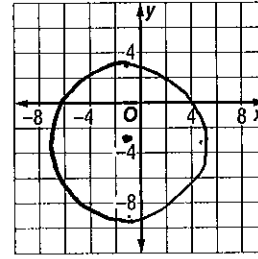**Find the center and radius of each circle. Then graph the circle.**

8. $(x + 3)^2 + y^2 = 16$

9. $3x^2 + 3y^2 = 12$
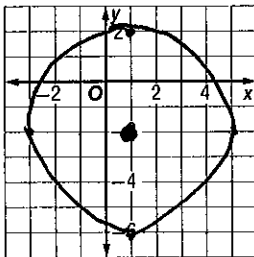$x^2 + y^2 = 4$

10. $x^2 + y^2 + 2x + 6y = 26$ $(x+1)^2 + (y+3)^2 = 36$
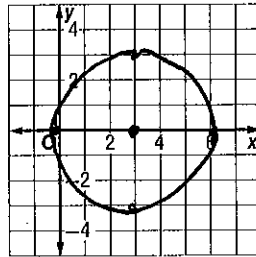

11. $(x - 1)^2 + y^2 + 4y = 12$
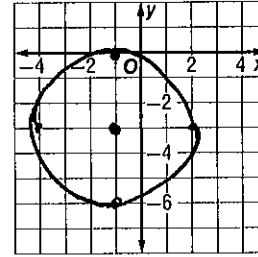$(x-1)^2 + (y+2)^2 = 16$

12. $x^2 - 6x + y^2 = 0$
$(x-3)^2 + y^2 = 9$

13. $x^2 + y^2 + 2x + 6y = -1$
$(x+1)^2 + (y+3)^2 = 9$

14. **WEATHER** On average, the circular eye of a hurricane is about 15 miles in diameter. Gale winds can affect an area up to 300 miles from the storm's center. A satellite photo of a hurricane's landfall showed the center of its eye on one coordinate system could be approximated by the point $(80, 26)$.

a. Write an equation to represent a possible boundary of the hurricane's eye.

$(x-80)^2 + (y-26)^2 = 56.25$

b. Write an equation to represent a possible boundary of the area affected by gale winds.

$(x-80)^2 + (y-26)^2 = 90000$