

**Show all your work to receive credit and box or circle your final answers.**

1) Find the center and the radius of the circle.  $(x + 3)^2 + (y - 5)^2 = 49$ .

Center at \_\_\_\_\_ Radius = \_\_\_\_\_

2) Find the center and the radius of the circle  $x^2 + y^2 + 2x - 4y - 11 = 0$ .

Center at \_\_\_\_\_ Radius = \_\_\_\_\_

Show your work below to receive credit.

For problem 3-6, graph each equation. Be sure to label the axes and the scale.

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

Graph each equation. Be sure to label the axes and the scale.

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

5)  $9x^2 - 4y^2 = 36$

6)  $x = \frac{1}{2}(y - 1)^2 - 2$

For problems 7 and 8, write each equation in standard form and then graph the equation. Be sure to label the axes and the scale.

7)  $x^2 - 4y^2 + 2x - 8y = 7$

8)  $x^2 + 4y^2 - 4x + 8y + 4 = 0$

9) Solve the system of equation algebraically for real values of  $x$  and  $y$ .

$$y = x^2 - 1$$

$$x^2 + y^2 = 13$$

