Pre Calculus Name_____

Parabolas and Circles HW

Date_____ Period____

Use the information provided to write the vertex form equation of each parabola.

1) $y = -\frac{1}{4}x^2 - 4x - 12$

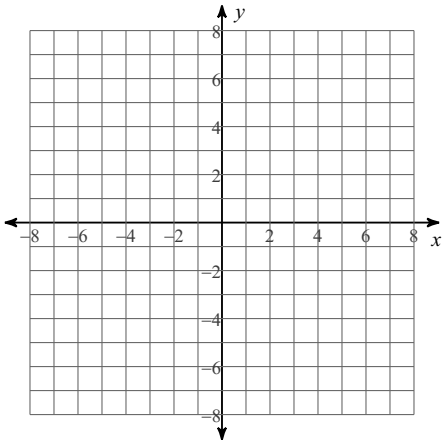
2) $y = 2x^2 + 20x + 47$

3) $x = -5y^2 - 40y - 76$

4) $x = -\frac{1}{2}y^2 + 4y - 11$

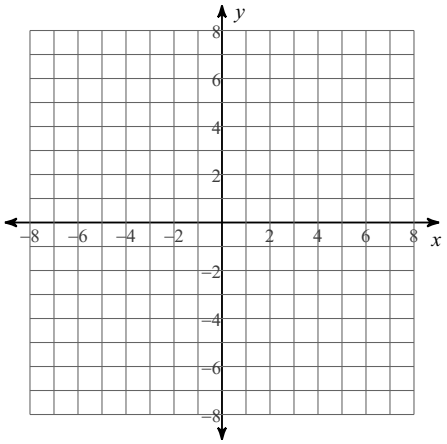
Identify the vertex, focus, directrix, y-intercept, and x-intercepts of each. Then sketch the graph.

5) $y = -2x^2 - 16x - 33$



Identify the vertex, focus, directrix, x-intercept, and y-intercepts of each. Then sketch the graph.

6) $x = -\frac{1}{3}y^2 - \frac{2}{3}y + 1$

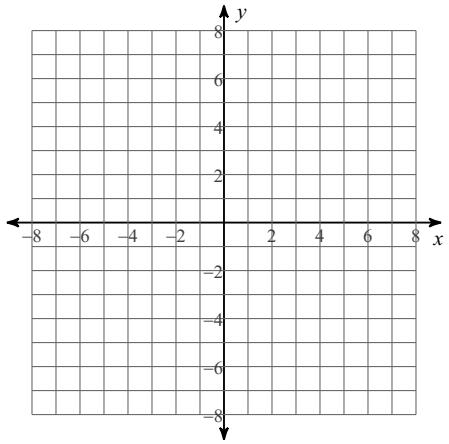


Use the information provided to write the standard form equation of each circle.

7) $x^2 + y^2 - 12x - 30y + 260 = 0$

Identify the center and radius of each. Then sketch the graph.

8) $x^2 + y^2 + 8y + 10 = 0$



Use the information provided to write the vertex form equation of each parabola.

9) Vertex: $(4, 10)$, Focus: $\left(\frac{43}{12}, 10\right)$

10) Focus: $\left(-1, -\frac{107}{12}\right)$, Directrix: $y = -\frac{109}{12}$

11) Opens left or right, and passes through $(-6, 8)$, $(24, 5)$, and $(-8, 9)$

12) Vertex: $(3, -4)$, y-intercept: 41

Pre Calculus Name_____

Parabolas and Circles HW

Date_____ Period____

Use the information provided to write the vertex form equation of each parabola.

1) $y = -\frac{1}{4}x^2 - 4x - 12$

$y = -\frac{1}{4}(x + 8)^2 + 4$

2) $y = 2x^2 + 20x + 47$

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

3) $x = -5y^2 - 40y - 76$

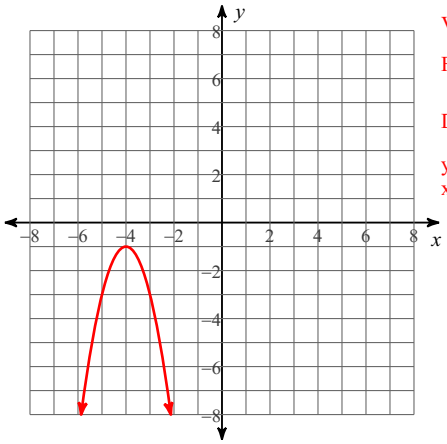
$x = -5(y + 4)^2 + 4$

4) $x = -\frac{1}{2}y^2 + 4y - 11$

$x = -\frac{1}{2}(y - 4)^2 - 3$

Identify the vertex, focus, directrix, y-intercept, and x-intercepts of each. Then sketch the graph.

5) $y = -2x^2 - 16x - 33$



Vertex: $(-4, -1)$

Focus: $\left(-4, -\frac{9}{8}\right)$

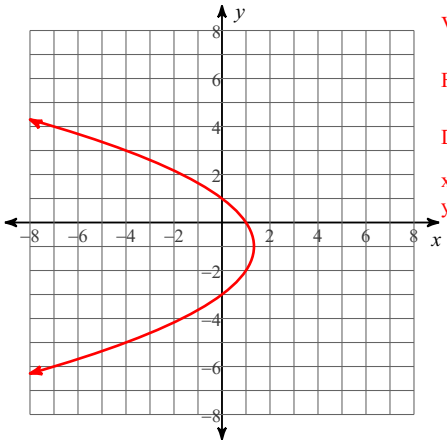
Directrix: $y = -\frac{7}{8}$

y-int: −33

x-int: None

Identify the vertex, focus, directrix, x-intercept, and y-intercepts of each. Then sketch the graph.

6) $x = -\frac{1}{3}y^2 - \frac{2}{3}y + 1$



Vertex: $\left(\frac{4}{3}, -1\right)$

Focus: $\left(\frac{7}{12}, -1\right)$

Directrix: $x = \frac{25}{12}$

x-int: 1

y-int: 1 and −3

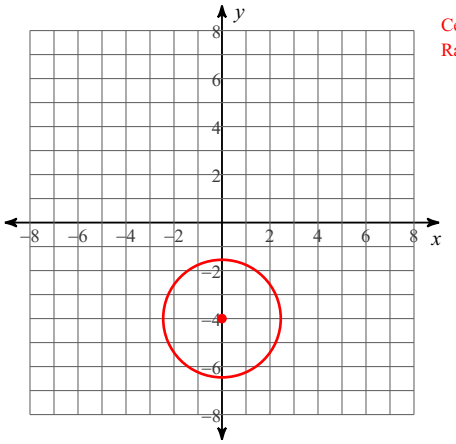
Use the information provided to write the standard form equation of each circle.

7) $x^2 + y^2 - 12x - 30y + 260 = 0$

$(x - 6)^2 + (y - 15)^2 = 1$

Identify the center and radius of each. Then sketch the graph.

8) $x^2 + y^2 + 8y + 10 = 0$



Center: $(0, -4)$
Radius: $\sqrt{6}$

Use the information provided to write the vertex form equation of each parabola.

9) Vertex: $(4, 10)$, Focus: $\left(\frac{43}{12}, 10\right)$

$x = -\frac{3}{5}(y - 10)^2 + 4$

10) Focus: $\left(-1, -\frac{107}{12}\right)$, Directrix: $y = -\frac{109}{12}$

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

11) Opens left or right, and passes through $(-6, 8)$, $(24, 5)$, and $(-8, 9)$

$x = 2(y - 9)^2 - 8$

12) Vertex: $(3, -4)$, y-intercept: 41

$y = 5(x - 3)^2 - 4$