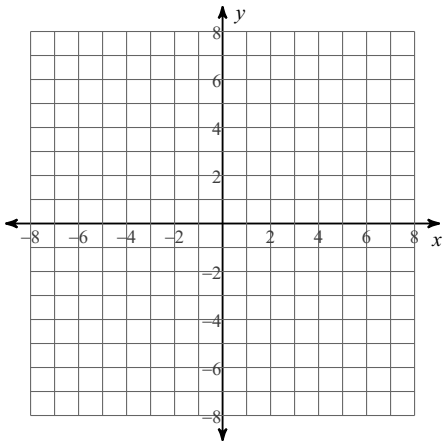
Precalculus Name_____ ID: 1

Conic Sections HW2

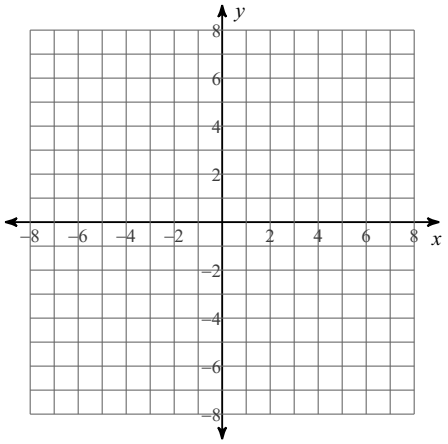
Date_____ Period____

PARABOLAS. Factor or use the quadratic formula to find the zeros, then put in vertex form to find the vertex. Then sketch the graph.

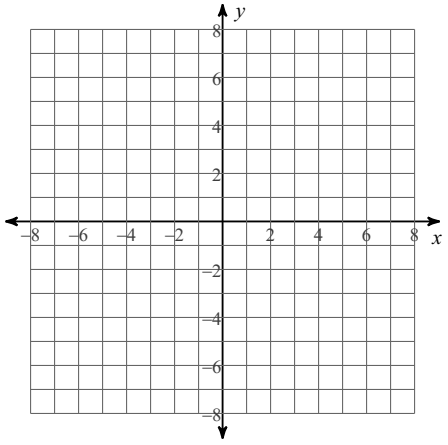
1) $y = -x^2 + 12x - 37$



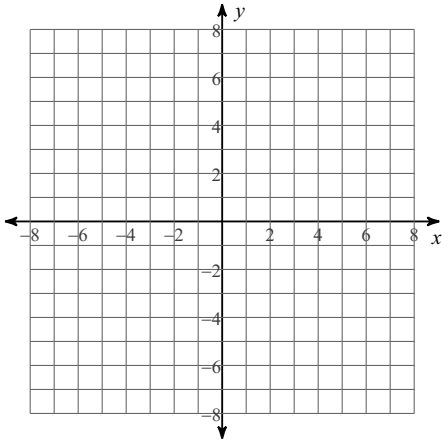
2) $y = -\frac{1}{4}x^2 - x - 2$



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

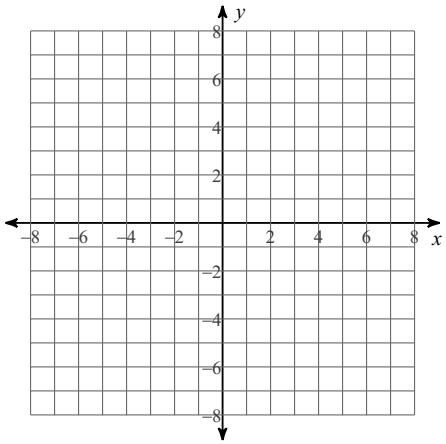


4) $y = -x^2 + 2x$

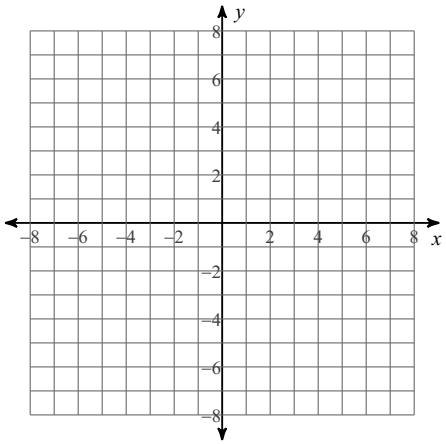


CIRCLES. Rewrite each equation into standard form. Identify the center and radius of each. Then sketch the graph.

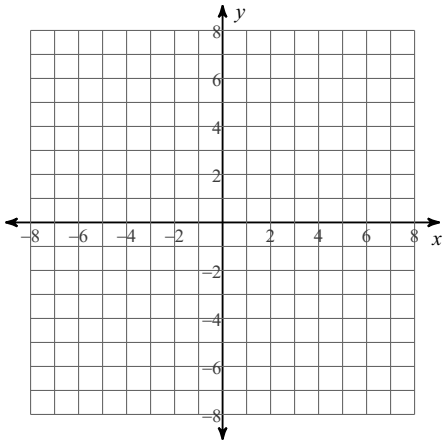
5) $x^2 + y^2 + 4y = 0$



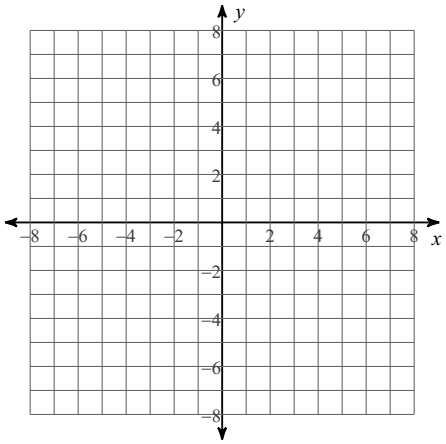
6) $x^2 + y^2 + 2x - 4y - 11 = 0$



7) $x^2 + y^2 - 6x + 6y + 5 = 0$

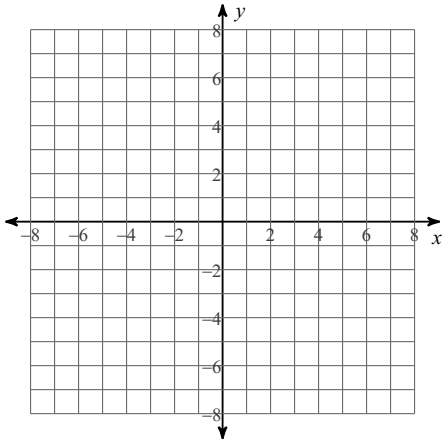


8) $x^2 + y^2 - 2 = 0$

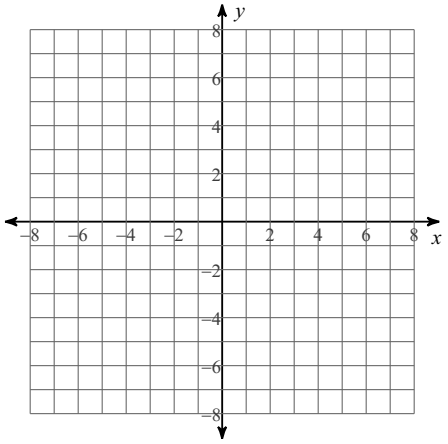


ELLIPSES. Identify the center, vertices, length of the major axis, and length of the minor axis of each. Then sketch the graph.

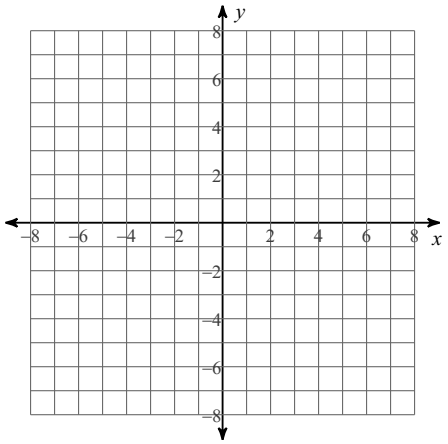
9) $x^2 + \frac{(y-3)^2}{16} = 1$



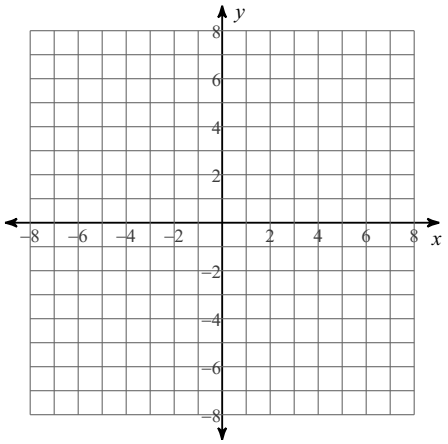
10) $\frac{(x+1)^2}{25} + \frac{(y-3)^2}{9} = 1$



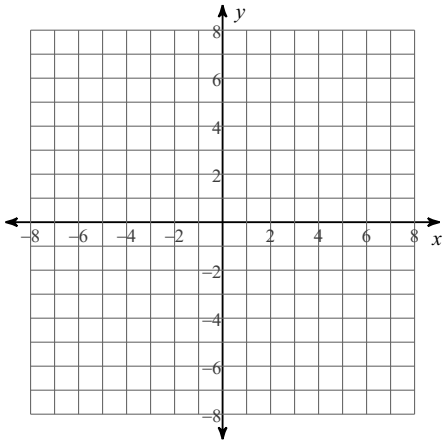
11) $\frac{x^2}{40} + \frac{y^2}{20} = 1$



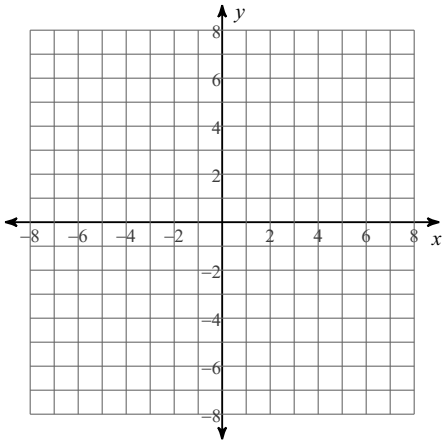
12) $(x-2)^2 + \frac{y^2}{49} = 1$



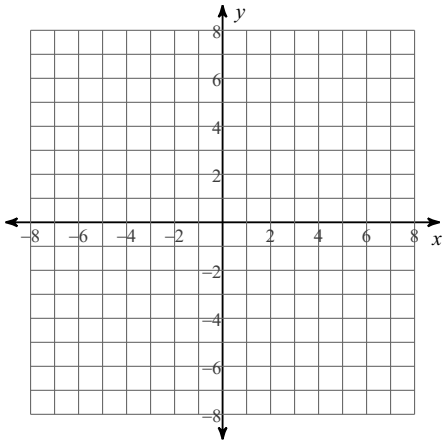
13) $4x^2 + y^2 + 24x = 0$



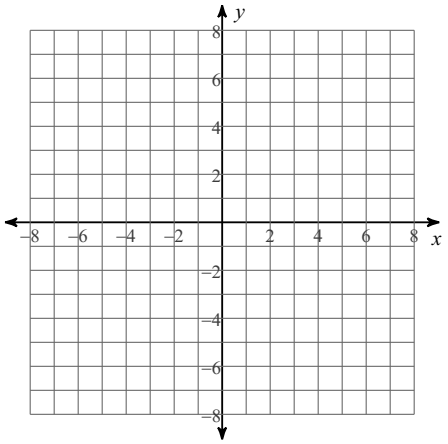
14) $9x^2 + 25y^2 - 200y + 175 = 0$



15) $4x^2 + 9y^2 + 24x + 54y + 81 = 0$

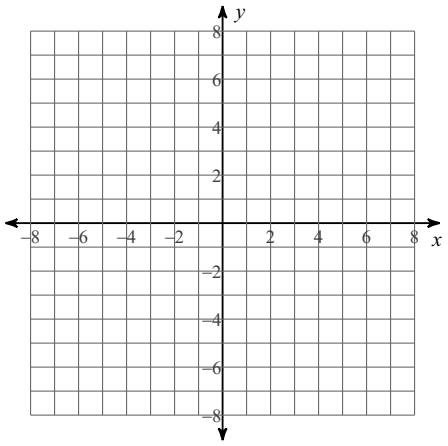


16) $9x^2 + 4y^2 - 8y - 140 = 0$

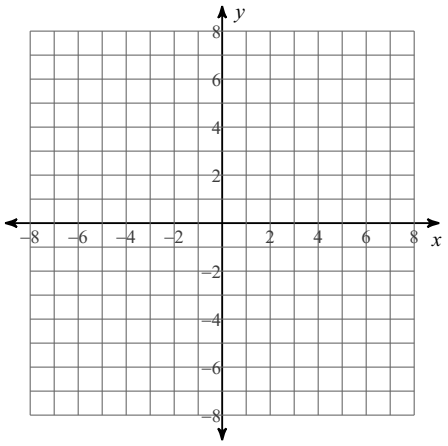


Identify the vertices and direction of opening of each. Then sketch the graph.

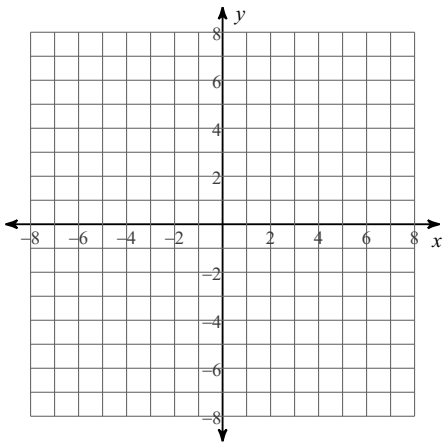
17) $\frac{(y+1)^2}{16} - (x+4)^2 = 1$



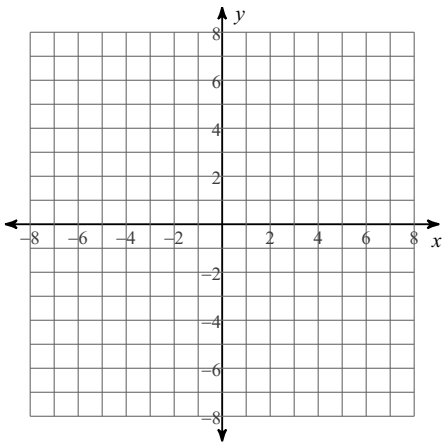
18) $\frac{(x+1)^2}{16} - \frac{(y+2)^2}{9} = 1$



19) $x^2 - 16y^2 + 32y - 32 = 0$

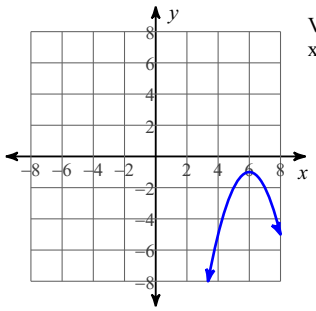


20) $-25x^2 + 16y^2 + 50x - 425 = 0$



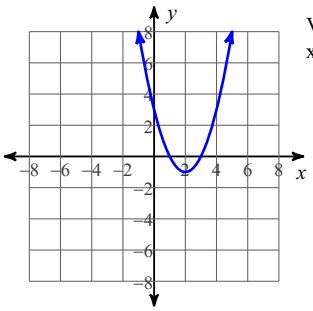
Answers to Conic Sections HW2 (ID: 1)

1)



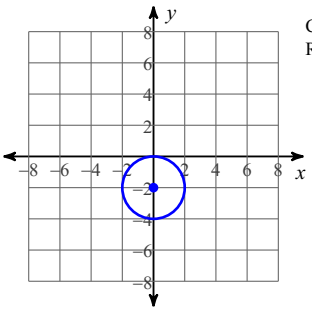
Vertex: $(6, -1)$
x-int: None

3)



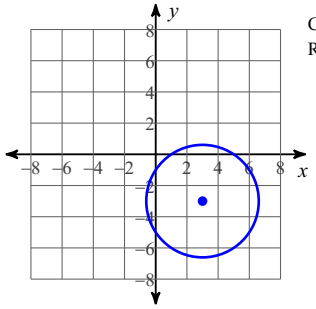
Vertex: $(2, -1)$
x-int: 3 and 1

5)



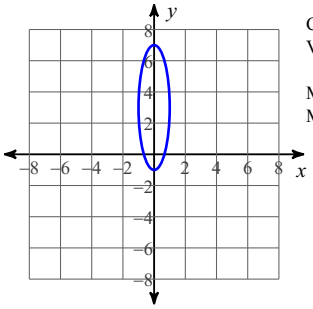
Center: $(0, -2)$
Radius: 2

7)



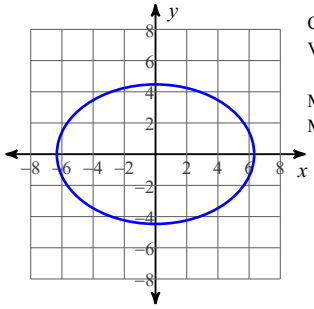
Center: $(3, -3)$
Radius: $\sqrt{13}$

9)



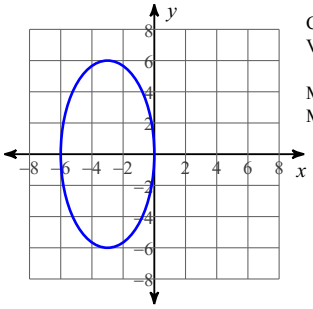
Center: $(0, 3)$
Vertices: $(0, 7)$
$(0, -1)$
Major Axis: 8 units
Minor Axis: 2 units

11)



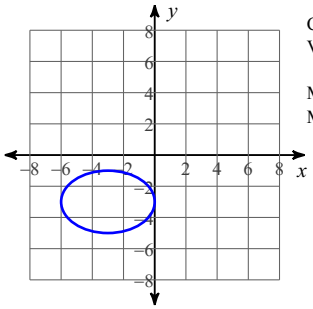
Center: $(0, 0)$
Vertices: $(2\sqrt{10}, 0)$
$(-2\sqrt{10}, 0)$
Major Axis: $4\sqrt{10}$ units
Minor Axis: $4\sqrt{5}$ units

13)



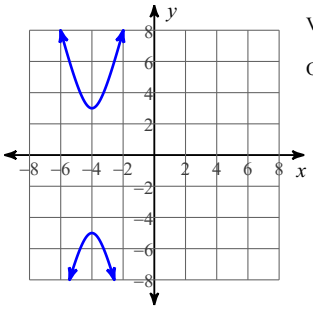
Center: $(-3, 0)$
Vertices: $(-3, 6)$
$(-3, -6)$
Major Axis: 12 units
Minor Axis: 6 units

15)



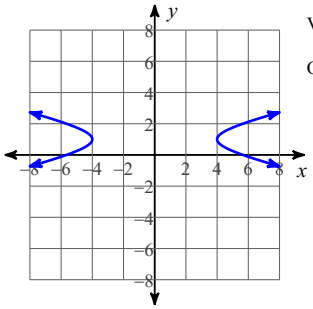
Center: $(-3, -3)$
Vertices: $(0, -3)$
$(-6, -3)$
Major Axis: 6 units
Minor Axis: 4 units

17)



Vertices: $(-4, 3)$
$(-4, -5)$
Opens up/down

19)



Vertices: $(4, 1)$
$(-4, 1)$
Opens left/right