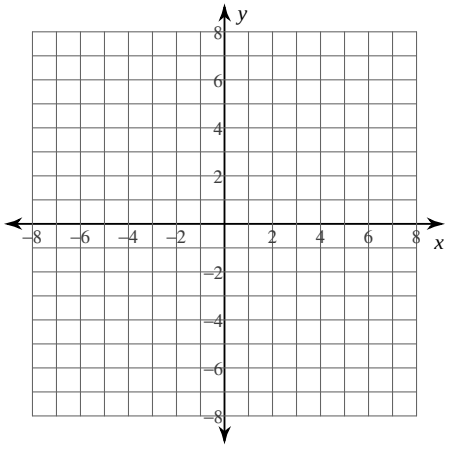
Math III Name_____

Spring Final Exam Review - Conics

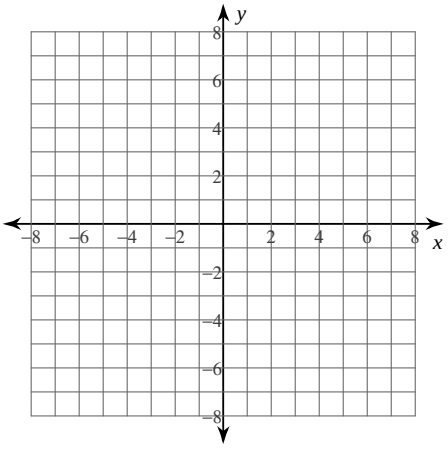
Date_____ Period____

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

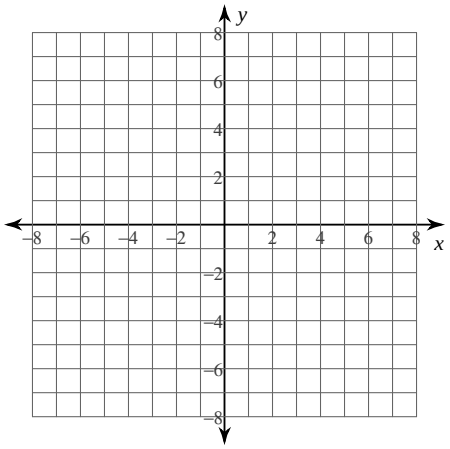
1) $y^2 - 4x + x^2 = -8y - 15$



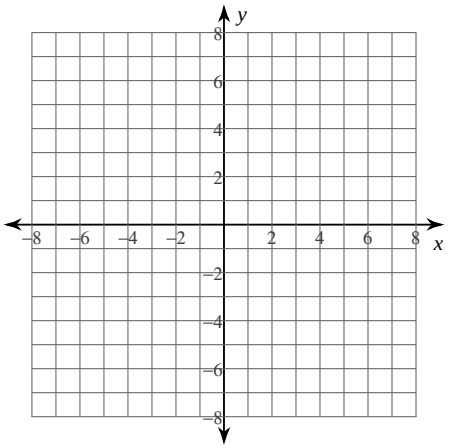
2) $8y = -x^2 - y^2 - 9$



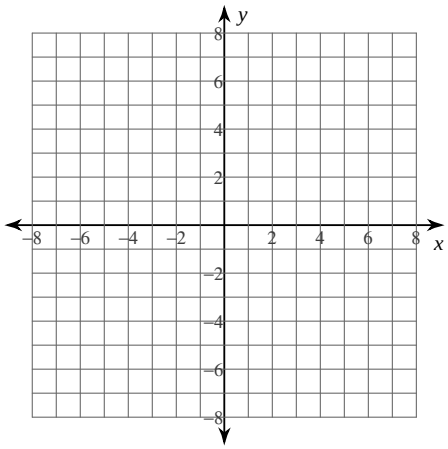
3) $x^2 + 2y + 6x = -1 - y^2$



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

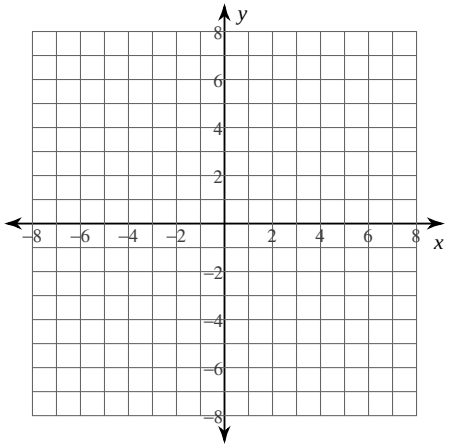


5) $(x-4)^2 + y^2 = 9$

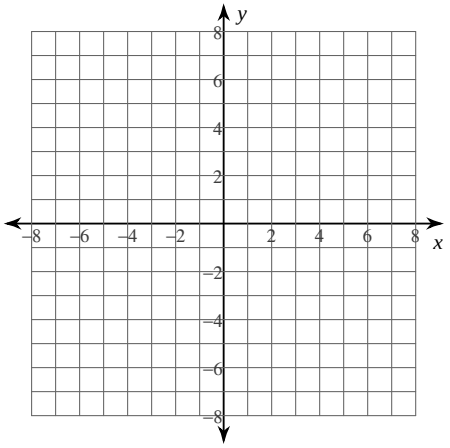


Identify the center, vertices, co-vertices, foci, length of the major axis, and length of the minor axis of each. Then sketch the graph.

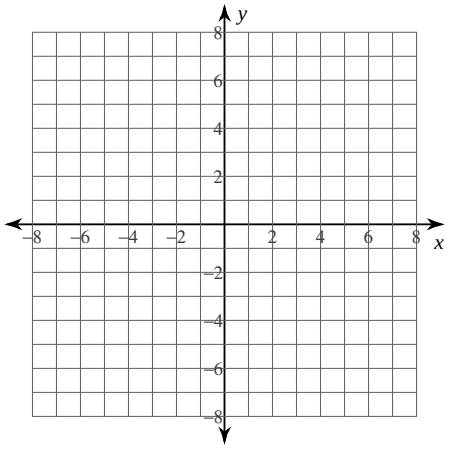
6) $\frac{x^2}{36} + \frac{y^2}{25} = 1$



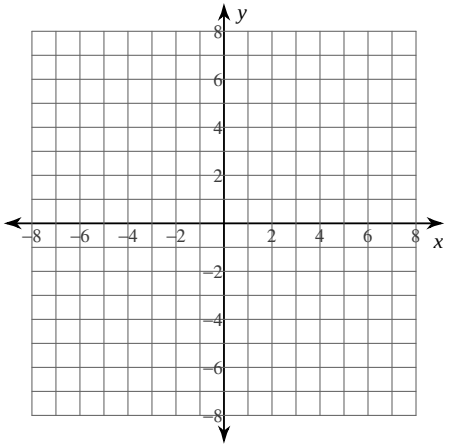
7) $\frac{x^2}{36} + y^2 = 1$



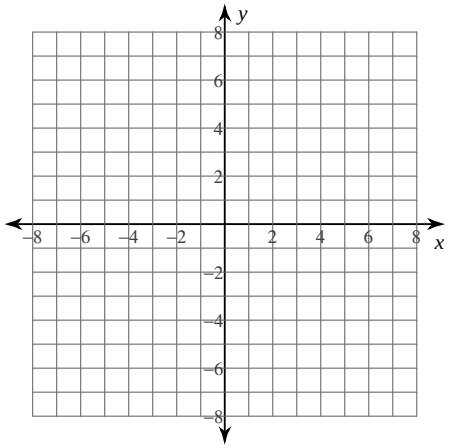
8) $4x^2 + 25y^2 - 8x - 250y + 529 = 0$



9) $16x^2 + 25y^2 - 64x - 100y - 236 = 0$

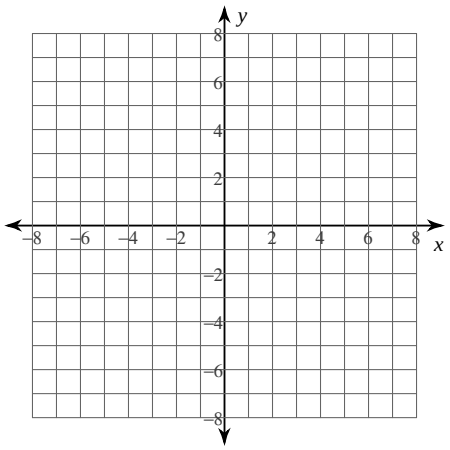


10) $x^2 + 25y^2 - 100y + 75 = 0$

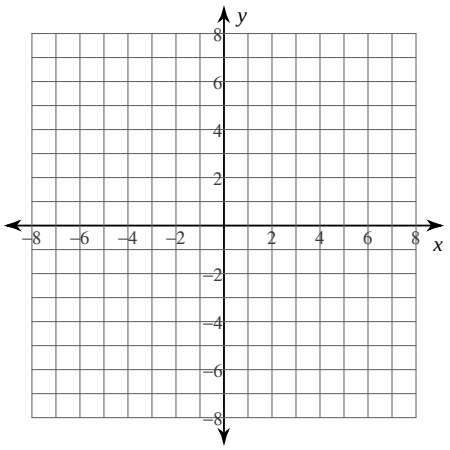


Identify the vertices, foci, asymptotes, length of the transverse axis, and length of the conjugate axis of each. Then sketch the graph.

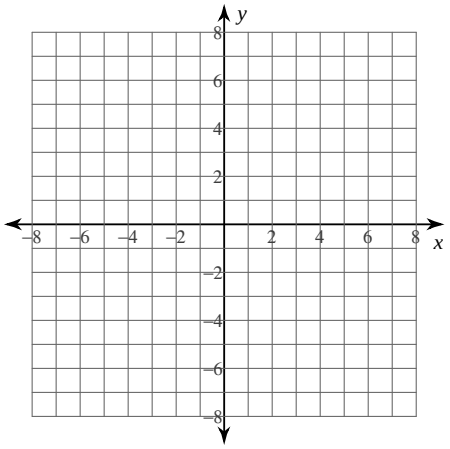
11) $\frac{(y+1)^2}{16} - \frac{x^2}{16} = 1$



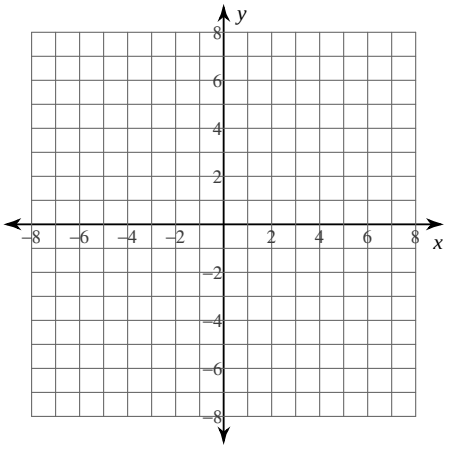
12) $\frac{y^2}{16} - \frac{(x+2)^2}{9} = 1$



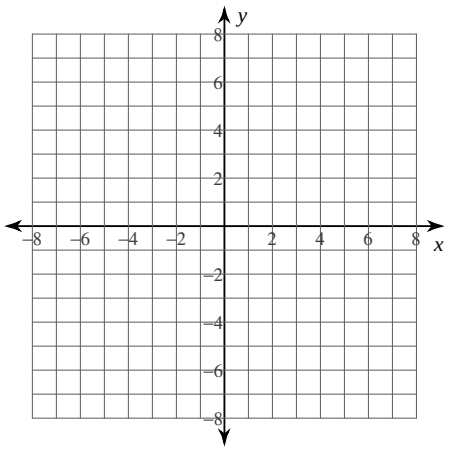
13) $-x^2 + y^2 - 2x + 2y - 9 = 0$



14) $-x^2 + y^2 + 2x + 2y - 16 = 0$

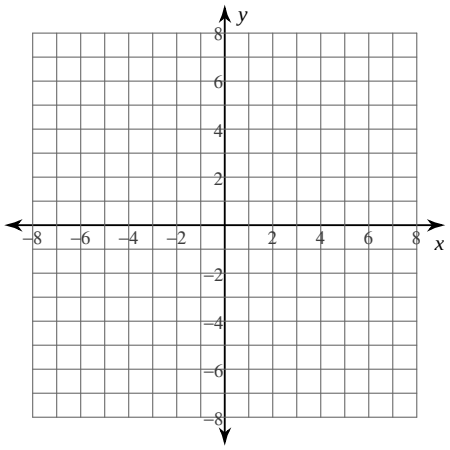


15) $-9x^2 + 16y^2 - 64y - 80 = 0$

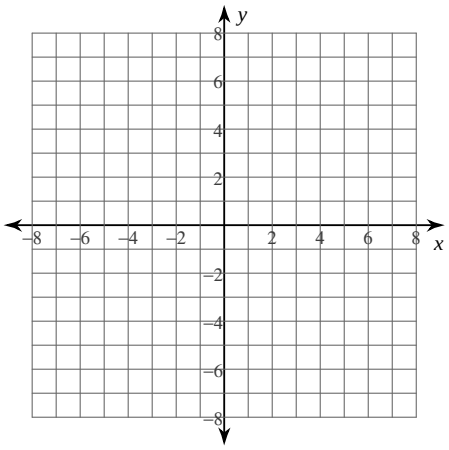


Identify the vertex, focus, axis of symmetry, directrix, and direction of opening of each. Then sketch the graph.

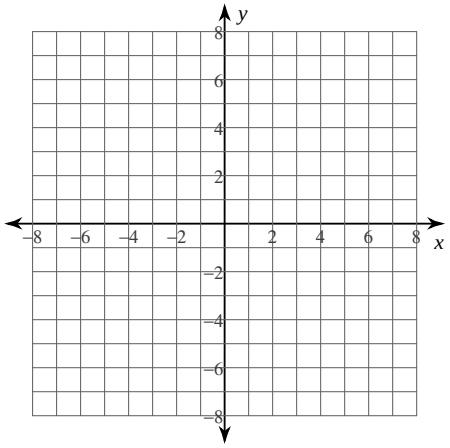
16) $y = 2x^2 - 8x + 3$



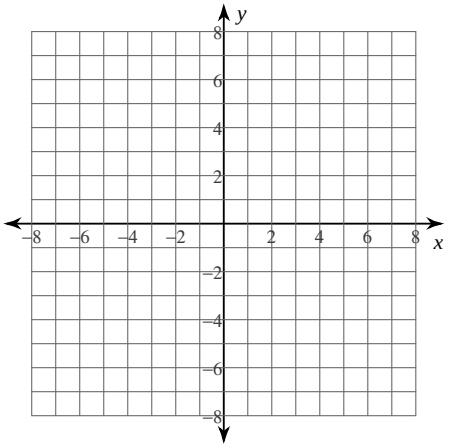
17) $y = 2x^2 + 20x + 50$



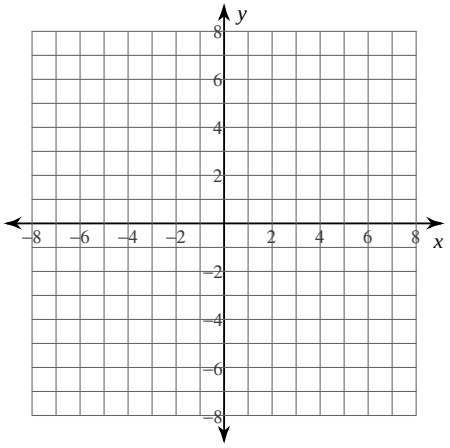
18) $y = (x + 2)^2 - 4$



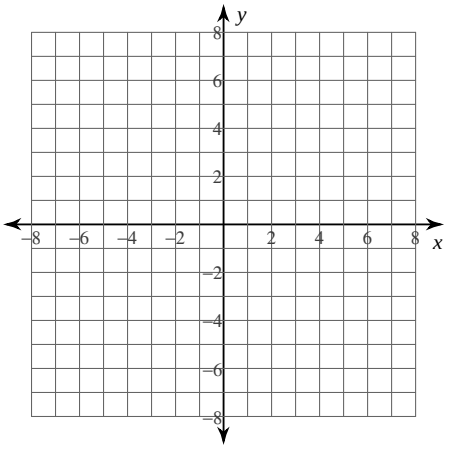
19) $y = -(x + 5)^2 + 4$



20) $-x^2 - 8x + y - 13 = 0$



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



Classify each conic section.

22) $2y^2 + x + 27 = 16y$

23) $-24x = -4x^2 - 4y^2 - 4y + 27$

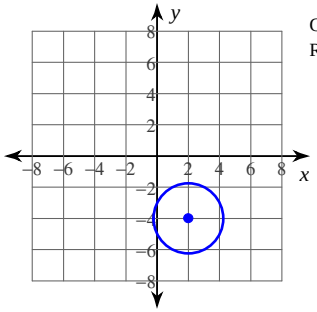
24) $-6y + x^2 - 9 = y^2 + 4x$

25) $4x^2 - 90y + 16x + 205 + 9y^2 = 0$

26) $6 + 3x^2 = -y$

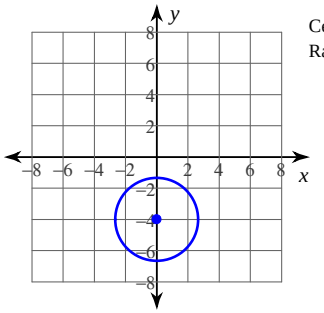
Answers to Spring Final Exam Review - Conics

1)



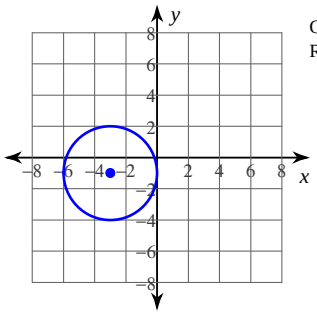
Center: $(2, -4)$
Radius: $\sqrt{5}$

2)



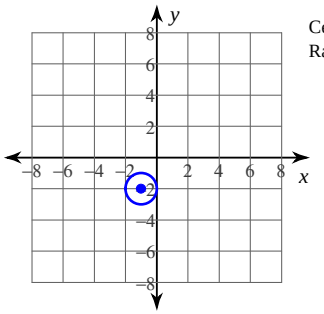
Center: $(0, -4)$
Radius: $\sqrt{7}$

3)



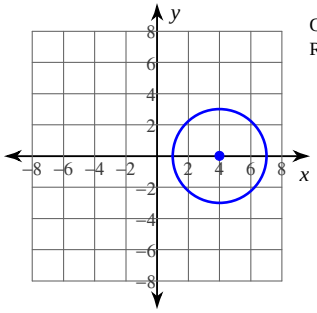
Center: $(-3, -1)$
Radius: 3

4)



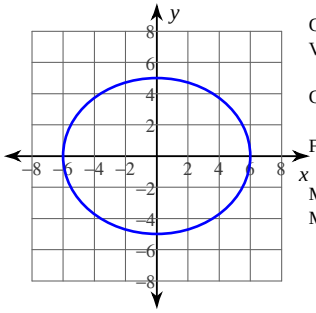
Center: $(-1, -2)$
Radius: 1

5)



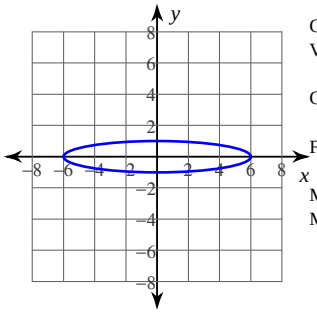
Center: $(4, 0)$
Radius: 3

6)



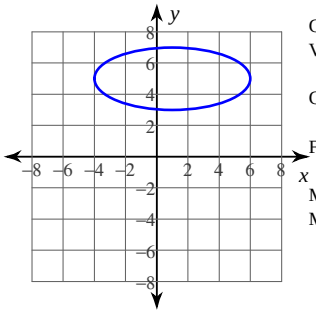
Center: $(0, 0)$
Vertices: $(6, 0)$
$(-6, 0)$
Co-vertices: $(0, 5)$
$(0, -5)$
Foci: $(\sqrt{11}, 0)$
$(-\sqrt{11}, 0)$
Major Axis: 12 units
Minor Axis: 10 units

7)



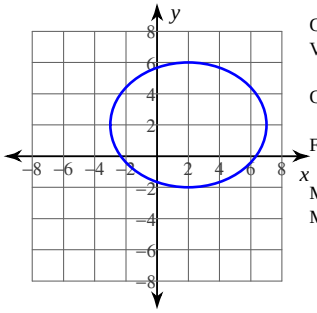
Center: $(0, 0)$
Vertices: $(6, 0)$
$(-6, 0)$
Co-vertices: $(0, 1)$
$(0, -1)$
Foci: $(\sqrt{35}, 0)$
$(-\sqrt{35}, 0)$
Major Axis: 12 units
Minor Axis: 2 units

8)



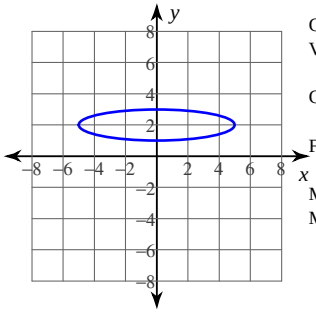
Center: $(1, 5)$
Vertices: $(6, 5)$
$(-4, 5)$
Co-vertices: $(1, 7)$
$(1, 3)$
Foci: $(1 + \sqrt{21}, 5)$
$(1 - \sqrt{21}, 5)$
Major Axis: 10 units
Minor Axis: 4 units

9)



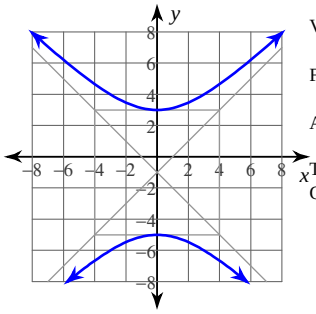
Center: $(2, 2)$
Vertices: $(7, 2)$
$(-3, 2)$
Co-vertices: $(2, 6)$
$(2, -2)$
Foci: $(5, 2)$
$(-1, 2)$
Major Axis: 10 units
Minor Axis: 8 units

10)



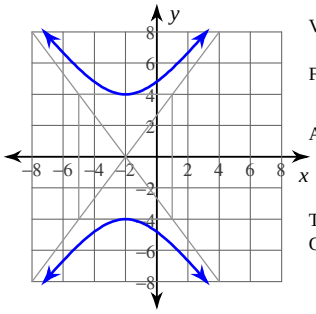
Center: $(0, 2)$
Vertices: $(5, 2)$
$(-5, 2)$
Co-vertices: $(0, 3)$
$(0, 1)$
Foci: $(2\sqrt{6}, 2)$
$(-2\sqrt{6}, 2)$
Major Axis: 10 units
Minor Axis: 2 units

11)



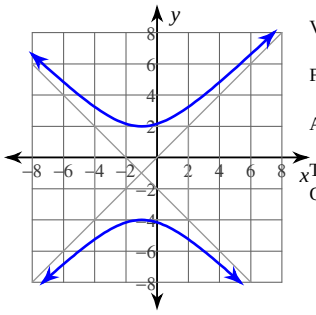
Vertices: $(0, 3)$
$(0, -5)$
Foci: $(0, -1 + 4\sqrt{2})$
$(0, -1 - 4\sqrt{2})$
Asym.: $y = x - 1$
$y = -x - 1$
Transverse Axis: 8 units
Conjugate Axis: 8 units

12)



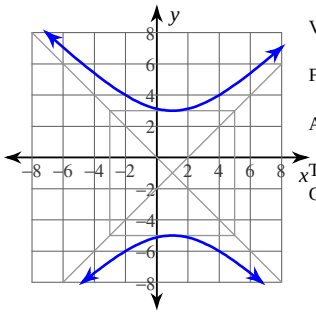
Vertices: $(-2, 4)$
$(-2, -4)$
Foci: $(-2, 5)$
$(-2, -5)$
Asym.: $y = \frac{4}{3}x + \frac{8}{3}$
$y = -\frac{4}{3}x - \frac{8}{3}$
Transverse Axis: 8 units
Conjugate Axis: 6 units

13)



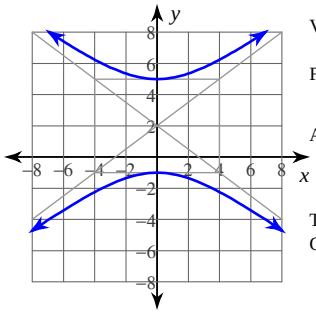
Vertices: $(-1, 2)$
$(-1, -4)$
Foci: $(-1, -1 + 3\sqrt{2})$
$(-1, -1 - 3\sqrt{2})$
Asym.: $y = x$
$y = -x - 2$
Transcribe Axis: 6 units
Conjugate Axis: 6 units

14)



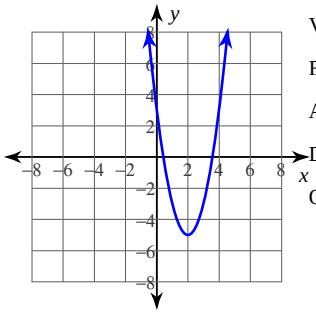
Vertices: $(1, 3)$
$(1, -5)$
Foci: $(1, -1 + 4\sqrt{2})$
$(1, -1 - 4\sqrt{2})$
Asym.: $y = x - 2$
$y = -x$
Transcribe Axis: 8 units
Conjugate Axis: 8 units

15)



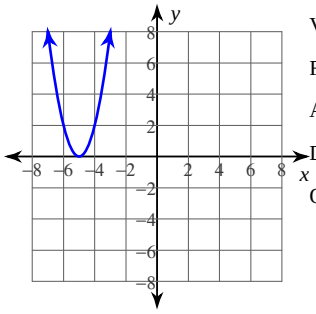
Vertices: $(0, 5)$
$(0, -1)$
Foci: $(0, 7)$
$(0, -3)$
Asym.: $y = \frac{3}{4}x + 2$
$y = -\frac{3}{4}x + 2$
Transcribe Axis: 6 units
Conjugate Axis: 8 units

16)



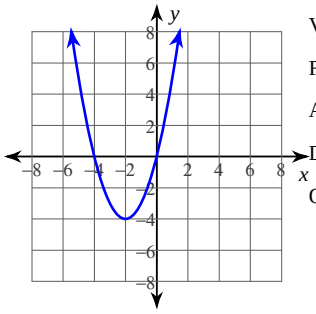
Vertex: $(2, -5)$
Focus: $\left(2, -\frac{39}{8}\right)$
Axis of Sym.: $x = 2$
Directrix: $y = -\frac{41}{8}$
Opens: Up

17)



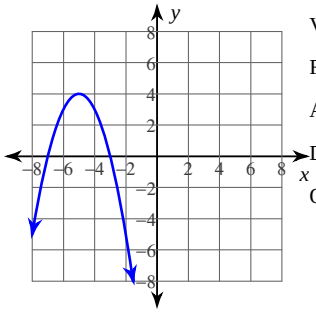
Vertex: $(-5, 0)$
Focus: $\left(-5, \frac{1}{8}\right)$
Axis of Sym.: $x = -5$
Directrix: $y = -\frac{1}{8}$
Opens: Up

18)



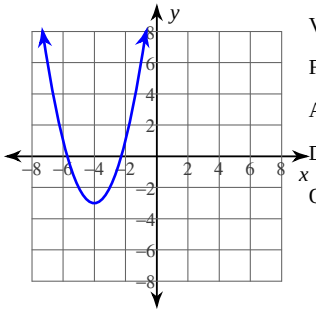
Vertex: $(-2, -4)$
Focus: $\left(-2, -\frac{15}{4}\right)$
Axis of Sym.: $x = -2$
Directrix: $y = -\frac{17}{4}$
Opens: Up

19)



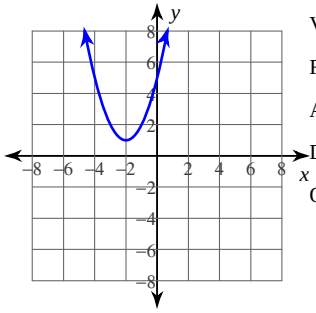
Vertex: $(-5, 4)$
Focus: $\left(-5, \frac{15}{4}\right)$
Axis of Sym.: $x = -5$
Directrix: $y = \frac{17}{4}$
Opens: Down

20)



Vertex: $(-4, -3)$
Focus: $\left(-4, -\frac{11}{4}\right)$
Axis of Sym.: $x = -4$
Directrix: $y = -\frac{13}{4}$
Opens: Up

21)



Vertex: $(-2, 1)$
Focus: $\left(-2, \frac{5}{4}\right)$
Axis of Sym.: $x = -2$
Directrix: $y = \frac{3}{4}$
Opens: Up

22) Parabola

23) Circle

24) Hyperbola

25) Ellipse

26) Parabola