Pre-Calculus MUST SHOW ALL WORK!!!! Name_____ ID: 1

Unit 6 Mid-Unit Test Conics- Circles, Parabolas & Ellipses Date_____

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

1) $(x-4)^2+(y+1)^2=1$

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

Identify the vertex, focus, and directrix of each PARABOLA. Then sketch the graph.

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

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

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

6) $y^2+x+4y+1=0$

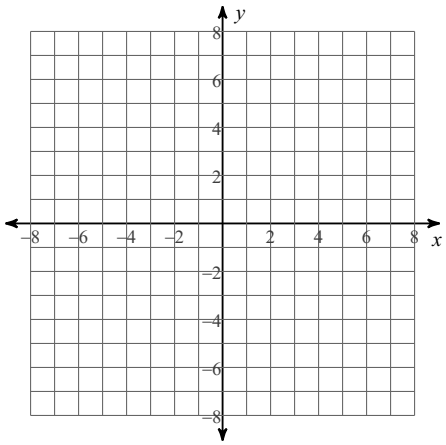
Use the information provided to write the standard form equation of each PARABOLA.

7) Vertex: $(-6, 0)$, Focus: $\left(-6, \frac{1}{2}\right)$

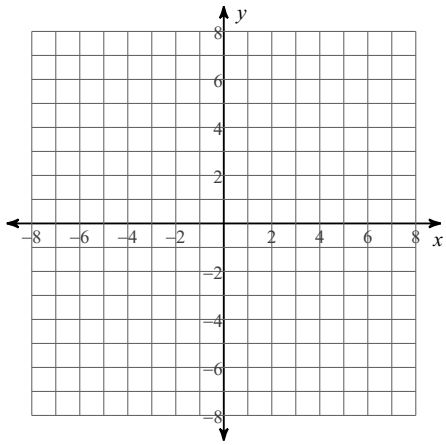
8) Vertex: $(-2, 7)$, Directrix: $x=-\frac{7}{4}$

Identify the center, vertices, and foci of each ELLIPSE. Then sketch the graph.

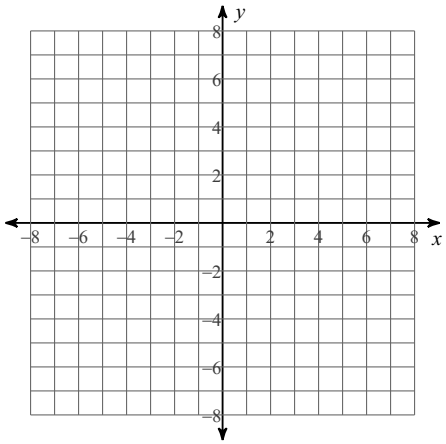
9) $(x+2)^2+\frac{y^2}{16}=1$



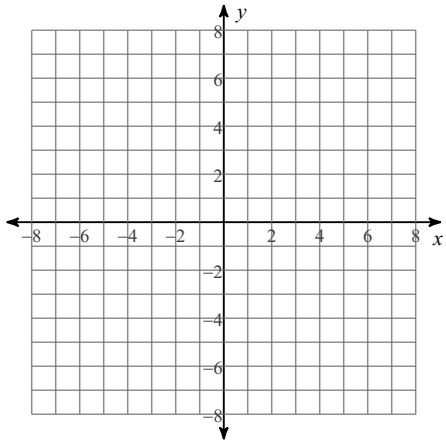
10) $\frac{(x-2)^2}{9}+\frac{y^2}{49}=1$



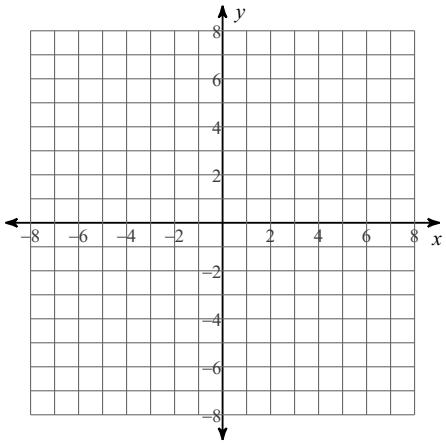
11) $\frac{(x-2)^2}{9} + \frac{(y+1)^2}{36} = 1$



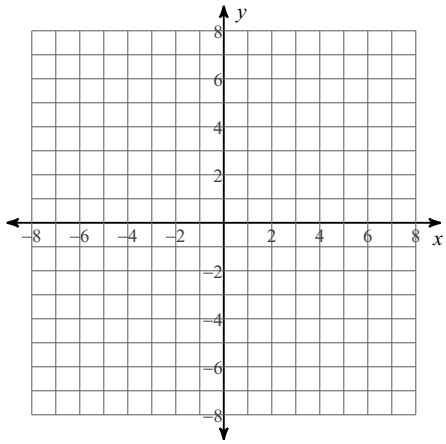
12) $9x^2 + y^2 + 90x + 2y + 217 = 0$



13) $4x^2 + y^2 + 16x - 20 = 0$



14) $25x^2 + 4y^2 - 200x + 8y + 304 = 0$



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

15) Vertices: $(5, -4), (-21, -4)$
Foci: $(-3, -4), (-13, -4)$

16) Center: $(4, -9)$
Vertex: $(9, -9)$
Focus: $(8, -9)$

Classify each conic section and write its equation in standard form.

17) $y^2 + 2x - 6y + 13 = 0$

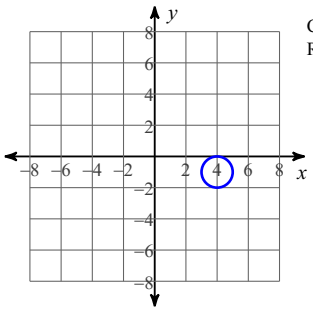
18) $x^2 + y^2 + 6x + 8y + 16 = 0$

19) $9x^2 + 16y^2 - 36x - 64y - 44 = 0$

20) $16x^2 + y^2 + 6y - 7 = 0$

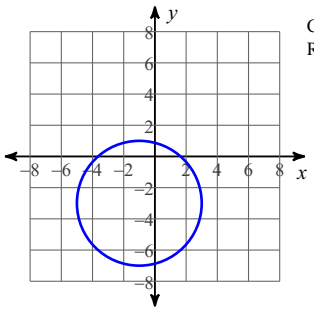
Answers to Unit 6 Mid-Unit Test Conics- Circles, Parabolas & Ellipses (ID: 1)

1)



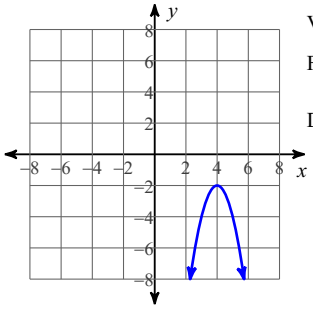
Center: $(4, -1)$
Radius: 1

2)



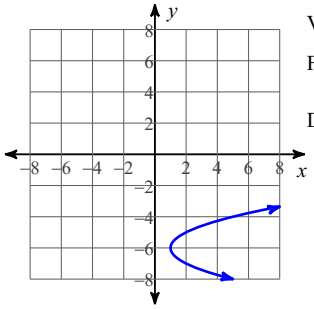
Center: $(-1, -3)$
Radius: 4

3)



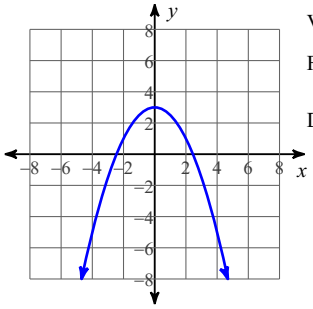
Vertex: $(4, -2)$
Focus: $\left(4, -\frac{17}{8}\right)$
Directrix: $y = -\frac{15}{8}$

4)



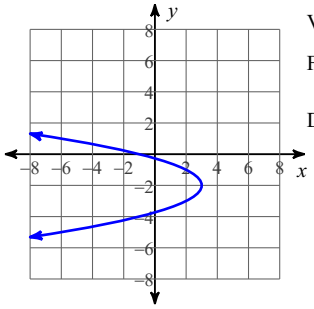
Vertex: $(1, -6)$
Focus: $\left(\frac{5}{4}, -6\right)$
Directrix: $x = \frac{3}{4}$

5)



Vertex: $(0, 3)$
Focus: $\left(0, \frac{5}{2}\right)$
Directrix: $y = \frac{7}{2}$

6)

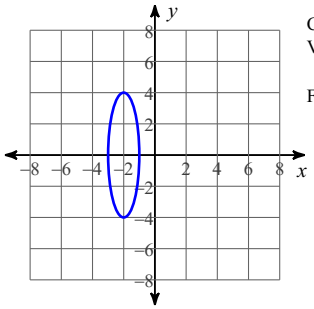


Vertex: $(3, -2)$
Focus: $\left(\frac{11}{4}, -2\right)$
Directrix: $x = \frac{13}{4}$

7) $2y = (x + 6)^2$

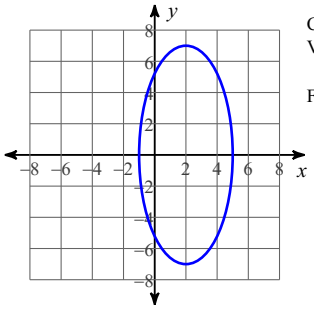
8) $-(x + 2) = (y - 7)^2$

9)



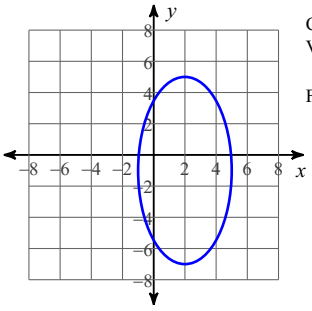
Center: $(-2, 0)$
Vertices: $(-2, 4)$
$(-2, -4)$
Foci: $(-2, \sqrt{15})$
$(-2, -\sqrt{15})$

10)



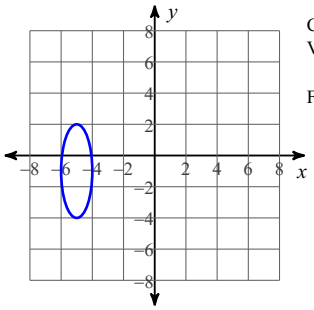
Center: $(2, 0)$
Vertices: $(2, 7)$
$(2, -7)$
Foci: $(2, 2\sqrt{10})$
$(2, -2\sqrt{10})$

11)



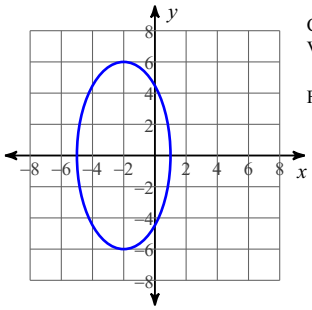
Center: $(2, -1)$
Vertices: $(2, 5)$
$(2, -7)$
Foci: $(2, -1 + 3\sqrt{3})$
$(2, -1 - 3\sqrt{3})$

12)



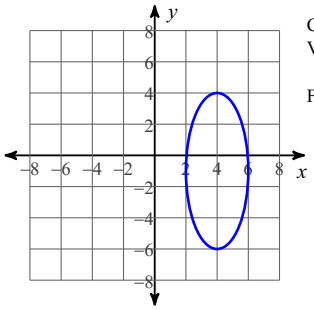
Center: $(-5, -1)$
Vertices: $(-5, 2)$
$(-5, -4)$
Foci: $(-5, -1 + 2\sqrt{2})$
$(-5, -1 - 2\sqrt{2})$

13)



Center: $(-2, 0)$
Vertices: $(-2, 6)$
$(-2, -6)$
Foci: $(-2, 3\sqrt{3})$
$(-2, -3\sqrt{3})$

14)



Center: $(4, -1)$
Vertices: $(4, 4)$
$(4, -6)$
Foci: $(4, -1 + \sqrt{21})$
$(4, -1 - \sqrt{21})$

15) $\dfrac{(x+8)^2}{169} + \dfrac{(y+4)^2}{144} = 1$

16) $\dfrac{(x-4)^2}{25} + \dfrac{(y+9)^2}{9} = 1$

17) Parabola

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

18) Circle

$(x+3)^2 + (y+4)^2 = 9$

19) Ellipse

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

20) Ellipse

$x^2 + \dfrac{(y+3)^2}{16} = 1$