Name____ Period _____ Date ____________
Pre-Calculus

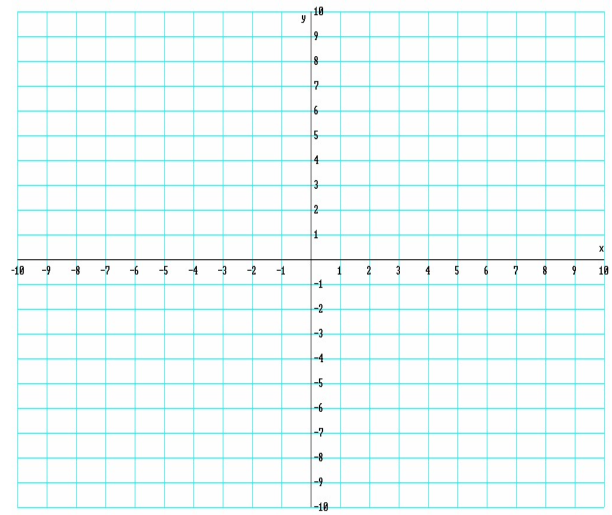
Section 1.9 & 9.1-9.4 Practice

Find the vertex. focus, and directrix of the parabola:

1) $4(x + 3) + (y - 6)^2 = 0$

Find the vertex, focus, directrix, and graph the parabola:
State the domain & range in interval notation.

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



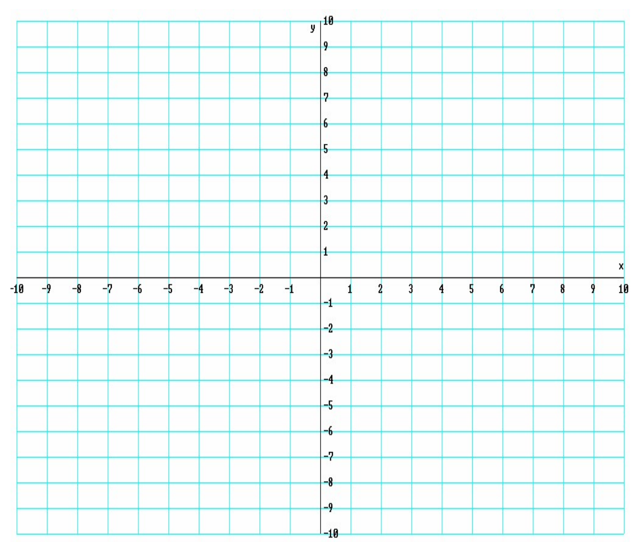
Find the equation of the specified parabola

3) V (-2, 1) F (-2, 4)

4) F (-2, -2), directrix is $x = 3$

Find the center. foci. vertices, eccentricity, and graph the ellipse.
State the domain & range in interval notation.

5) $9x^2 + 4y^2 - 54x - 32y + 109 = 0$



Find the equation of the
specified ellipse.

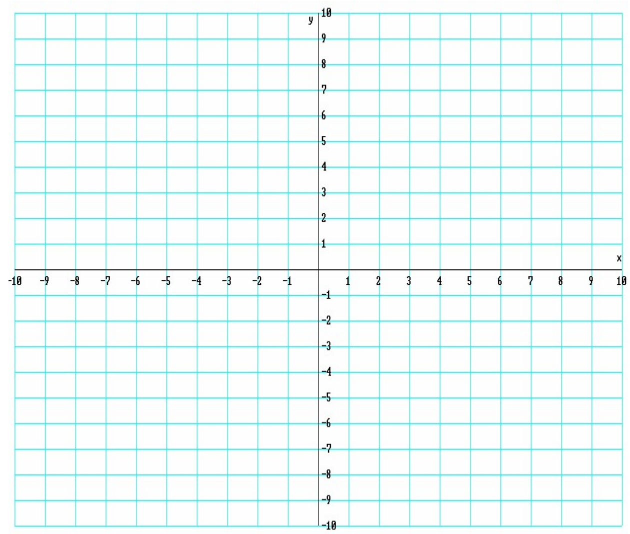
6) V (±7, 0), F (±2, 0)

7) V (0, ±6), eccentricity is 1/3

Find the center, vertices, foci, equation of the asymptotes. and graph the hyperbola

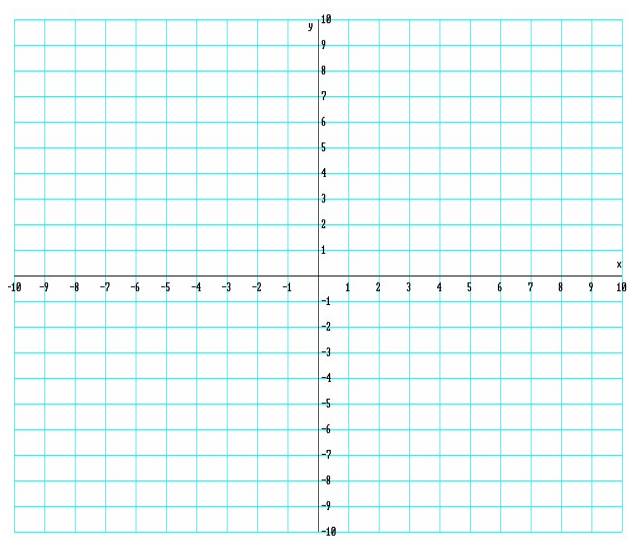
State the domain & range in interval notation.

8) $\frac{y^2}{36} - \frac{x^2}{4} = 1$



9) Find the standard form of the equation of the ellipse.
Find the center, vertices, foci, and eccentricity: Sketch the ellipse.

$16x^2 + 25y^2 - 32x + 50y + 16 = 0$



10. Identify the conic: $x^2 + y^2 + 6x + 6y - 1 = 0$

a. Rewrite the equation in standard form:

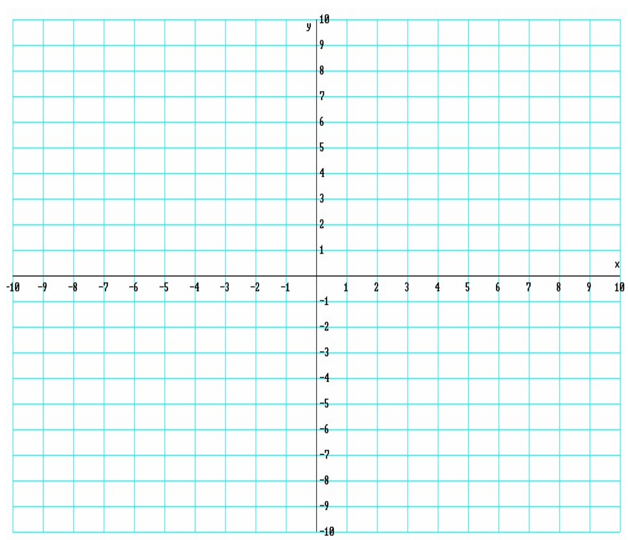
b. Where is the center located?

c. What is the radius?

d. Describe any x-intercepts (if they exist)

e. Describe any y-intercepts (if they exist)

f. Accurately graph your circle. Label the center.



11. Identify the conic: $y^2 + 4y - 4x + 15 = 0$

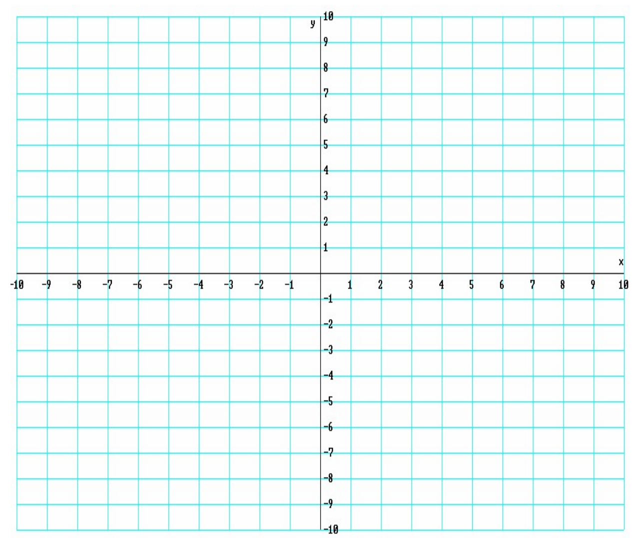
a. Rewrite in standard form

b. Where is the vertex?

c. Where is the focus?

d. What is the directrix?

e. Accurately graph the parabola. Label the vertex.



12. Identify the conic: $4x^2 + 8y^2 - 16x + 32y + 32 = 0$

a. Rewrite in Standard Form:

b. Identify the center:

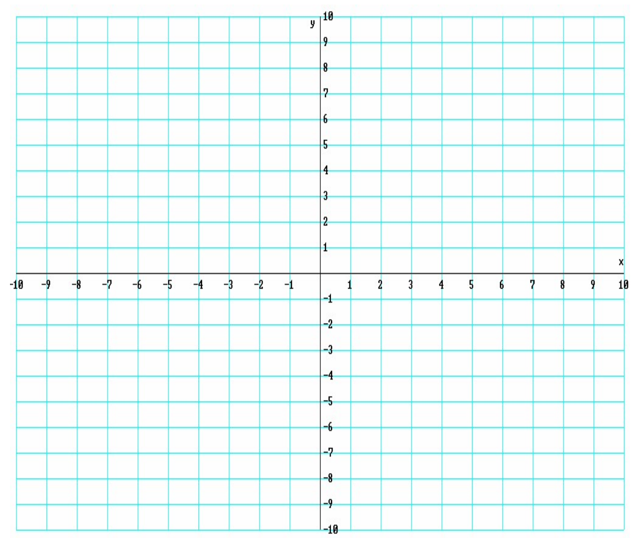
c. Identify the foci:

d. Identify the vertices:

e. What is the length of the major axis?

f. What is the length of the minor axis?

g. Accurately graph the ellipse and label the center.



13. Identify the conic: $20x^2 - 16y^2 - 40x + 128y - 556 = 0$

a) Rewrite in standard form:

b) Identify the center:

c) Identify the vertices:

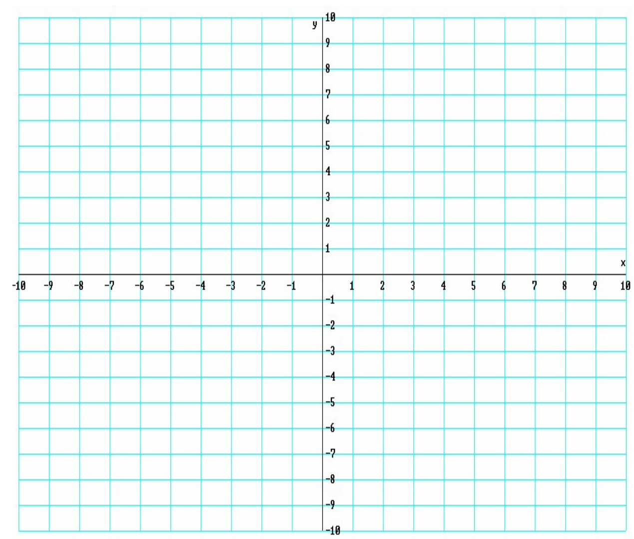
d) Identify the foci:

e) Identify the asymptotes:

f) How long is the conjugate axis:

g) How long is the transverse axis:

h) Accurately graph the hyperbola and label the center:



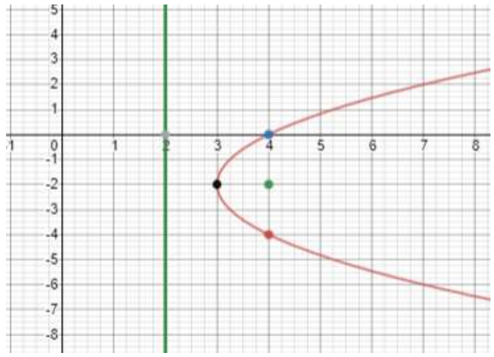
Find the equation of the specified hyperbola.

14) V (O, ±5), F (0, ±9)

Section 1.9 & 9.1-9.4 Practice ANSWERS:

1) $(y-6)^2 = -4(x+3)$
V(-3, 6)
F(-4, 6)
x = -2

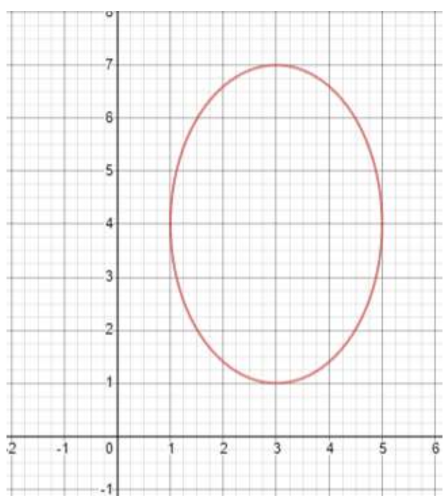
2) $(y+2)^2 = 4(x-3)$
V(3, -2)
F(4, -2)
Dir: x = 2
D: [3, ∞)
R: (-∞, ∞)
AoS: y = -2



3) $(x+2)^2 = 12(y-1)$

4) $(y+2)^2 = -10\left(x-\frac{1}{2}\right)$

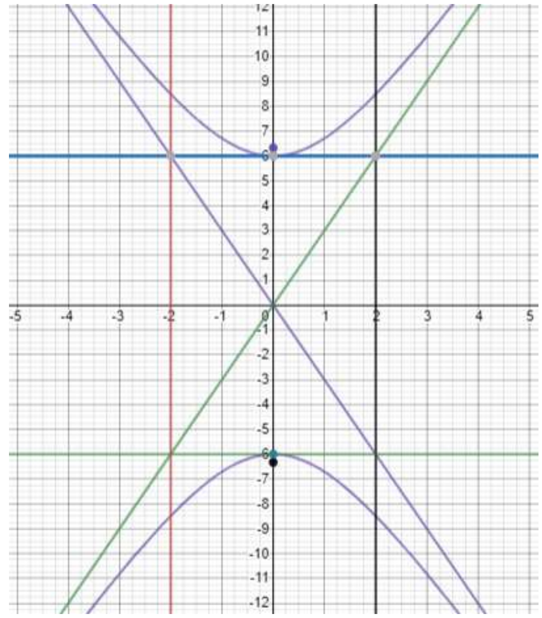
5) $\frac{(x-3)^2}{4} + \frac{(y-4)^2}{9} = 1$
C: (3, 4)
V: (3, 7), (3, 1)
CV: (1,4), (5, 4)
F: (3, 4±$\sqrt{5}$))
e: $\frac{\sqrt{5}}{3}$
D: [1, 5]
R: [1, 7]



6) $\frac{x^2}{49} + \frac{y^2}{45} = 1$

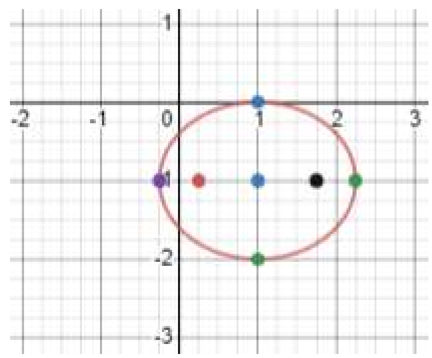
7) $\frac{x^2}{32} + \frac{y^2}{36} = 1$

8) C: (0,0)
V: (0, ±6)
F: $(0, \pm 2\sqrt{10})$
Asymptotes: $y = \pm 3x$
D: (-∞, ∞)
R: (-∞, -6] ∪ [6, ∞)

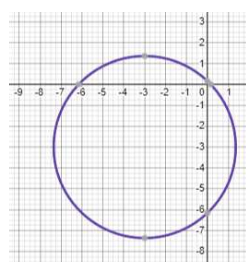


9) $$\frac{(x-1)^2}{\frac{25}{16}} + (y+1)^2 = 1$$

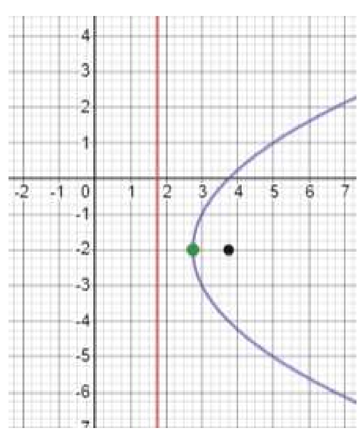
C: $(1, -1)$
V: $(\frac{9}{4}, -1), (-\frac{1}{4}, -1)$
CV: (1, 0), (1, -2)
F: $(\frac{7}{4}, -1), (\frac{1}{4}, -1)$
e: $\frac{3}{5}$



10)
a. $(x+3)^2 + (y+3)^2 = 19$
b. Center: $(-3, -3)$
c. Radius: $\sqrt{19}$
d. x-Intercepts: $x = -3 \pm \sqrt{10}$
e. y-Intercepts: $y = -3 \pm \sqrt{10}$



11)
a. $(y+2)^2 = 4\left(x - \frac{11}{4}\right)$
b. Vertex: $\left(\frac{11}{4}, -2\right)$
c. Focus: $\left(\frac{15}{4}, -2\right)$
d. Directrix: $x = \frac{7}{4}$



12)

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

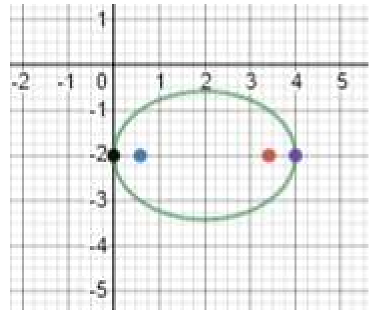
b. Center: $(2,-2)$

c. Foci: $\left(2\pm\sqrt{2},-2\right)$

d. Vertices: (4, -2) and (0, -2)

e. Major Axis: 4

f. Minor Axis: $2\sqrt{2}$



13)

a. $\frac{(x-1)^2}{16}-\frac{(y-4)^2}{20}=1$

b. Center: $(1,\ 4)$

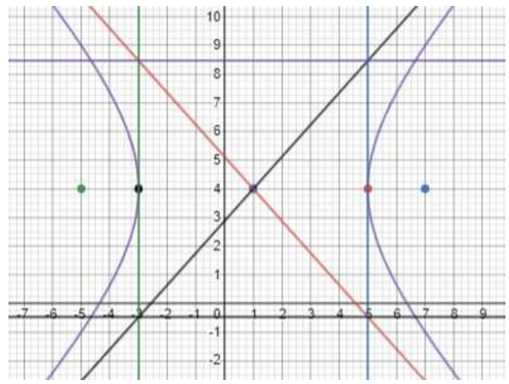
c. Vertices: $(-3,\ 4)\ and\ (5,4)$

d. Foci: (7, 4) and (-5, 4)

e. Asymptotes: $y-4=\pm\frac{\sqrt{5}}{2}(x-1)$

f. Conjugate Axis: $4\sqrt{5}$

g. Transverse Axis: 8



14) $\frac{y^2}{25}-\frac{x^2}{56}=1$