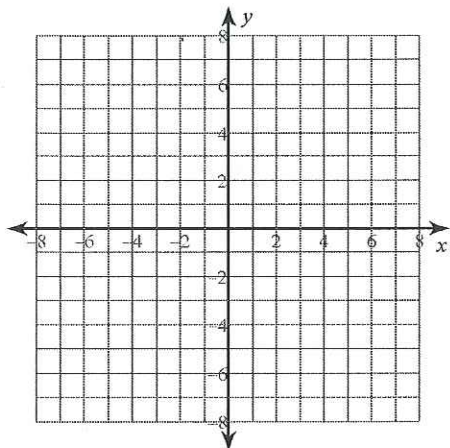


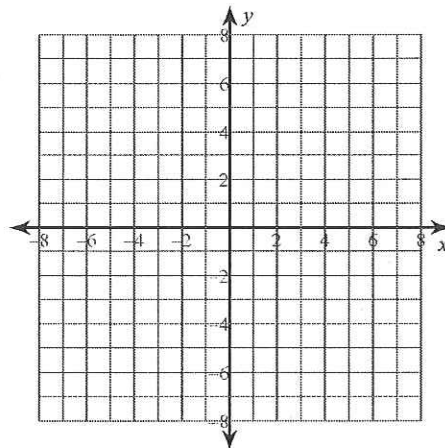
## Hyperbolas Day 1

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

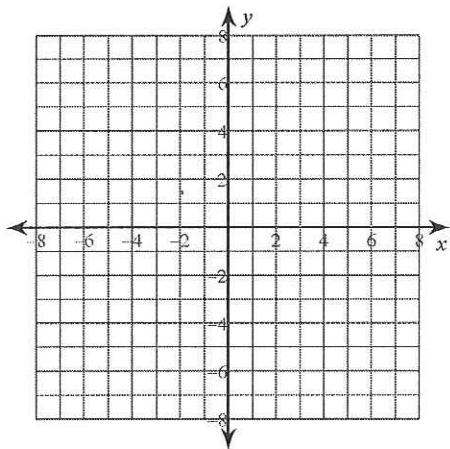
$$1) \frac{(x+2)^2}{9} - \frac{(y-1)^2}{4} = 1$$



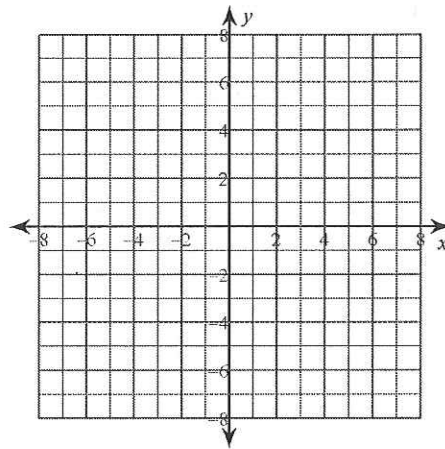
$$2) (y+4)^2 - \frac{x^2}{25} = 1$$



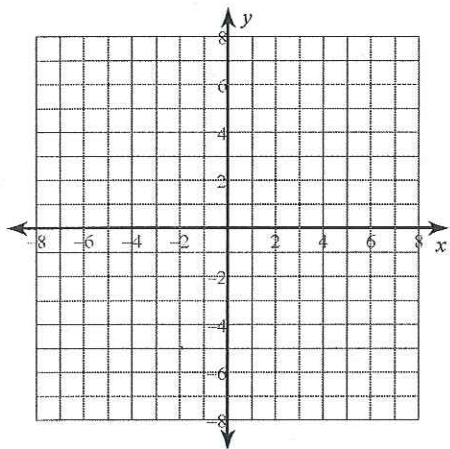
$$3) \frac{(y-2)^2}{9} - \frac{(x-3)^2}{4} = 1$$



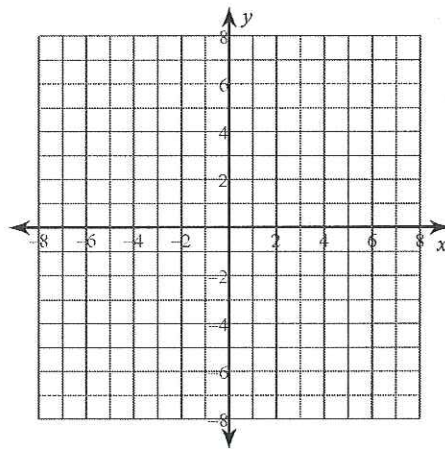
$$4) \frac{(x+1)^2}{16} - (y+2)^2 = 1$$



$$5) \frac{(y+2)^2}{9} - \frac{(x-1)^2}{4} = 1$$



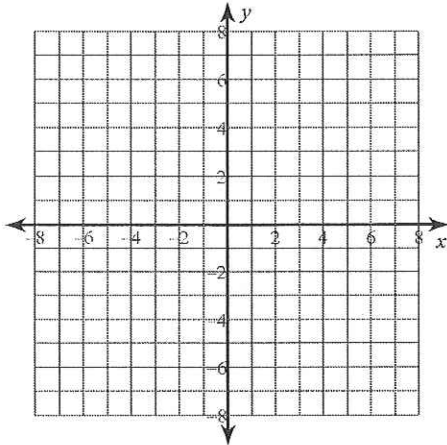
$$6) \frac{x^2}{25} - \frac{(y+1)^2}{16} = 1$$



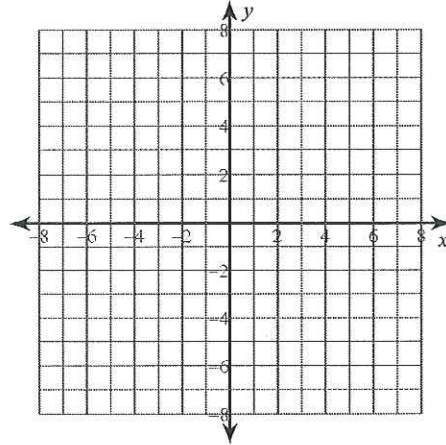
Hyperbolas Day 2

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

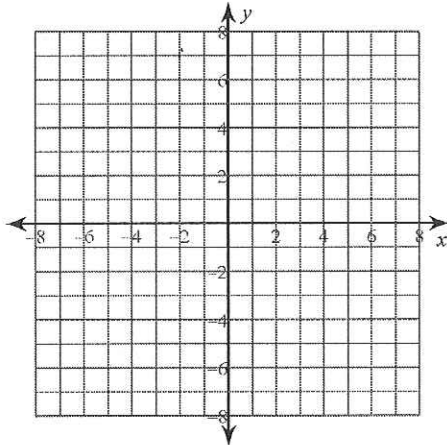
1)  $\frac{y^2}{9} - \frac{(x+1)^2}{16} = 1$



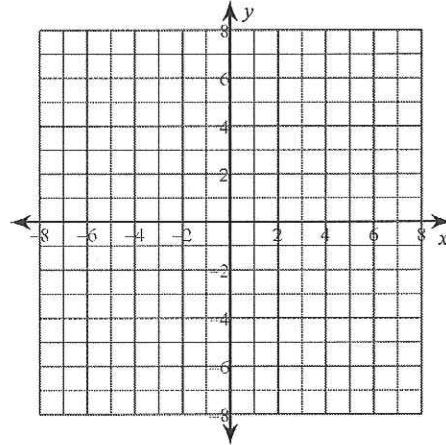
2)  $\frac{x^2}{16} - \frac{(y+2)^2}{9} = 1$



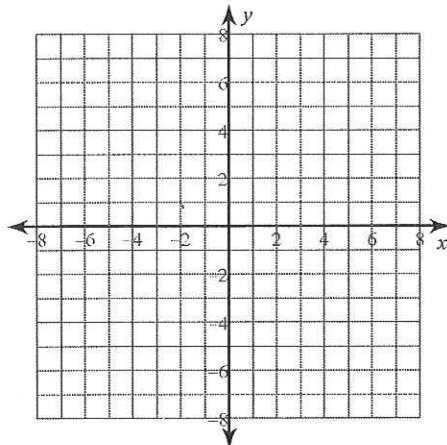
3)  $\frac{(y+2)^2}{4} - \frac{x^2}{9} = 1$



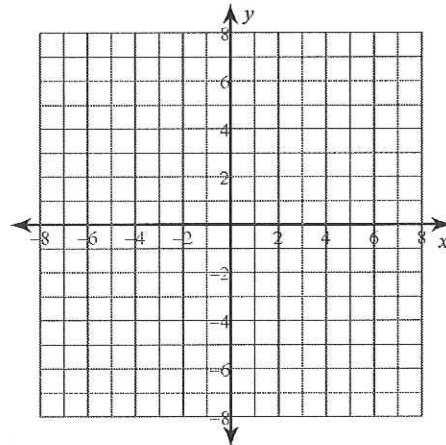
4)  $\frac{(y-2)^2}{4} - \frac{(x+1)^2}{16} = 1$



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



6)  $\frac{y^2}{9} - \frac{(x+1)^2}{4} = 1$



## Hyperbolas Day 3 - Conic Form

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

1)  $4x^2 - 7y^2 + 72x + 14y + 177 = 0$

2)  $-x^2 + 4y^2 + 2x + 16y - 129 = 0$

3)  $-9x^2 + 4y^2 - 90x - 32y - 305 = 0$

4)  $x^2 - 16y^2 + 4x + 32y - 156 = 0$

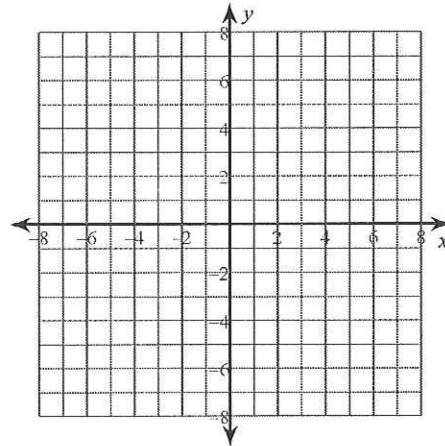
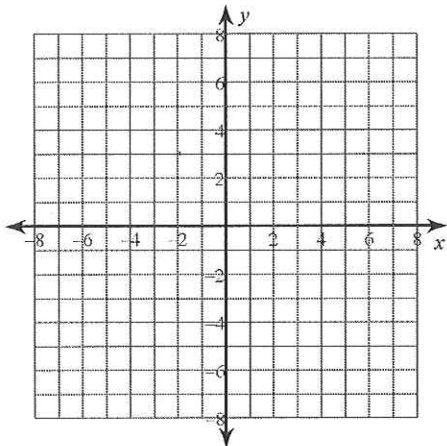
5)  $-17x^2 + 7y^2 - 102x - 112y - 300 = 0$

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

Identify the vertices, foci, asymptotes, and eccentricity of each. Then sketch the graph.

7)  $x^2 - 25y^2 + 200y - 425 = 0$

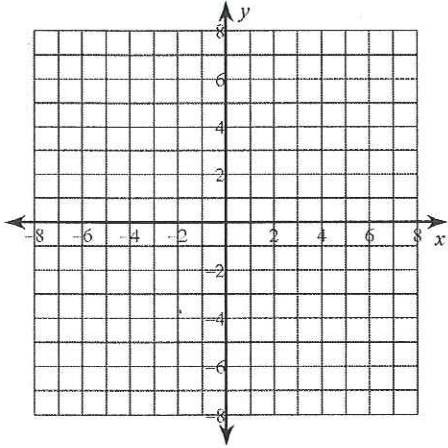
8)  $-4x^2 + y^2 + 16x - 32 = 0$



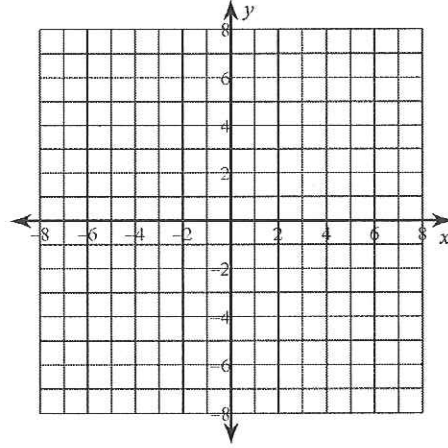
## Hyperbolas - General Conic Form

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

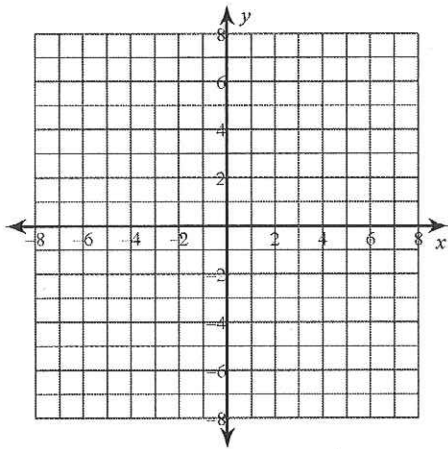
1)  $-25x^2 + 4y^2 + 100x - 200 = 0$



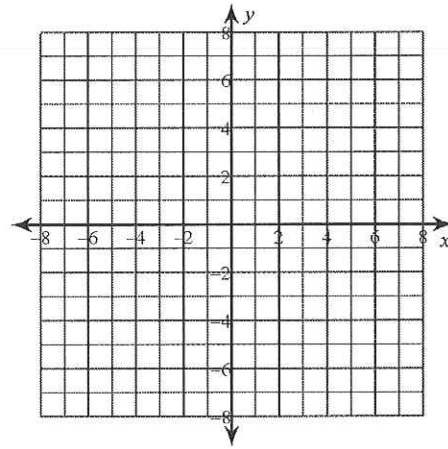
2)  $4x^2 - y^2 - 16x + 2y - 1 = 0$



3)  $16x^2 - y^2 + 64x - 2y + 47 = 0$



4)  $-16x^2 + y^2 + 128x - 272 = 0$



Unit 4 Quest Review - Circles, Ellipses, Hyperbolas Date \_\_\_\_\_ Period \_\_\_\_\_

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

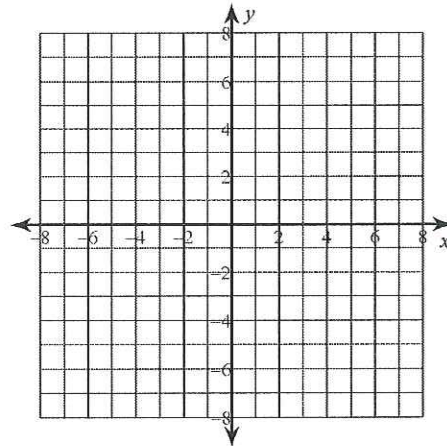
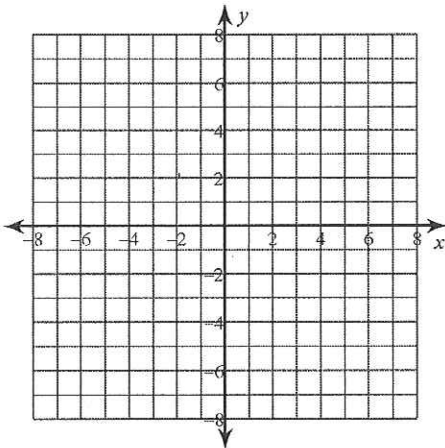
- 1) Center:  $(9, -1)$   
 Radius: 6

- 2) Ends of a diameter:  $(10, -15)$  and  $(10, -3)$

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

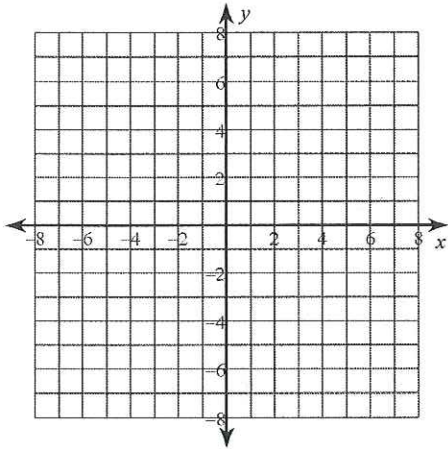
3)  $(x + 2)^2 + (y - 3)^2 = 4$

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

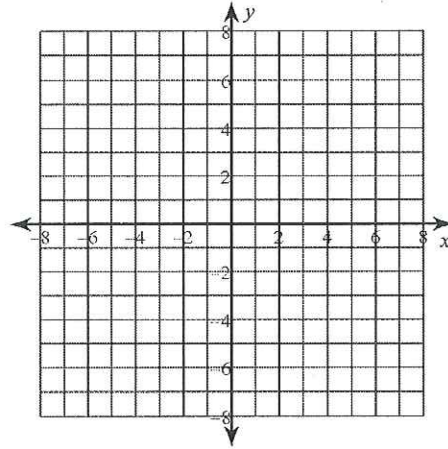


Identify the center, vertices, co-vertices, foci, length of the major axis, length of the minor axis, and eccentricity of each. Then sketch the graph.

5)  $\frac{(x-3)^2}{4} + \frac{y^2}{49} = 1$

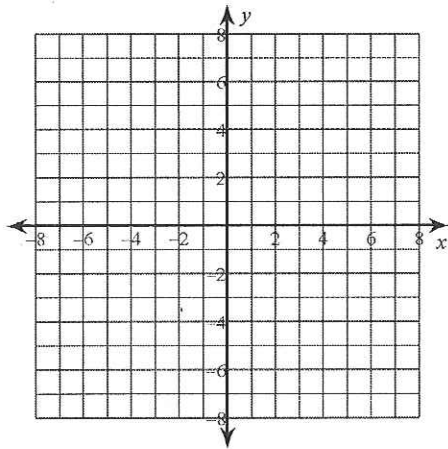


6)  $\frac{(x-3)^2}{16} + \frac{(y-5)^2}{4} = 1$

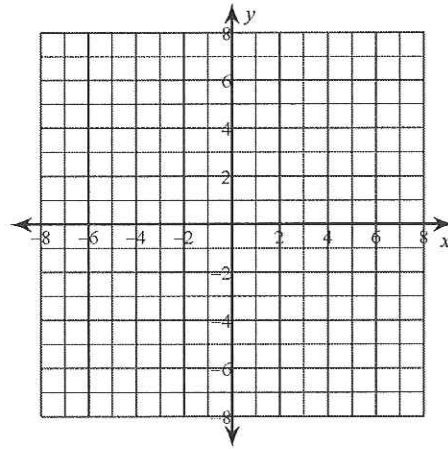


Graph each equation.

7)  $49x^2 + 4y^2 - 294x + 245 = 0$

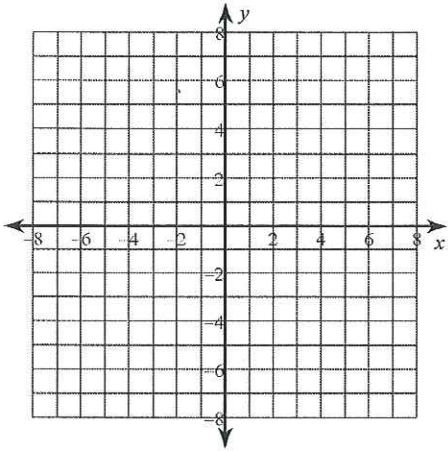


8)  $4x^2 + 9y^2 - 32x - 18y + 37 = 0$

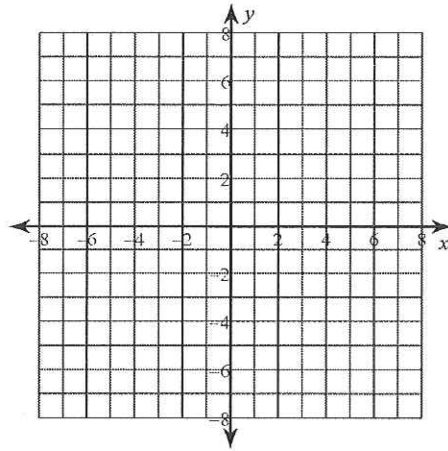


Identify the vertices, foci, asymptotes, length of the transverse axis, length of the conjugate axis, and eccentricity of each. Then sketch the graph.

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

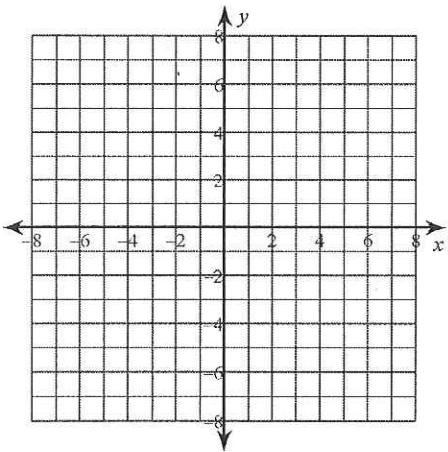


$$10) \frac{(x-1)^2}{9} - \frac{y^2}{25} = 1$$

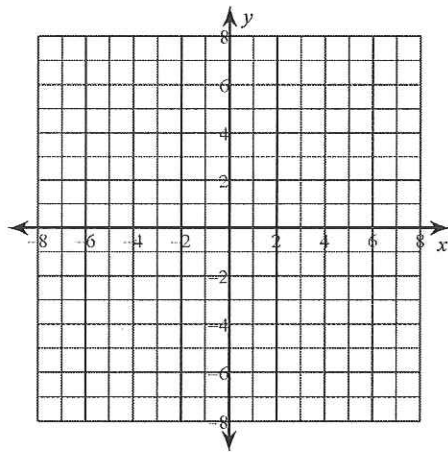


Graph each equation.

$$11) -x^2 + 4y^2 - 8y - 12 = 0$$



$$12) x^2 - 16y^2 + 96y - 160 = 0$$



Identify the following conics as a circle, ellipse or hyperbola.

$$13) x^2 + y^2 - 4x + 8y + 19 = 0$$

$$14) -4x^2 + y^2 - 8x - 2y - 19 = 0$$

$$15) 49x^2 + y^2 + 294x + 392 = 0$$

$$16) \frac{(x+1)^2}{9} - \frac{(y+3)^2}{4} = 1$$

$$17) (x-1)^2 + (y-2)^2 = 16$$

$$18) x^2 + \frac{(y-1)^2}{36} = 1$$