Ellipse, where $a > b$

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$ or $\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1$

Center is (0, 0)   Center is (0, 0)

x-intercepts $(\pm a, 0)$ (vertices)   x-intercepts $(0, \pm b)$ (endpoints of minor axis)

y-intercepts $(0, \pm b)$ (endpoints of minor axis)   y-intercepts $(\pm a, 0)$ (vertices)

Graph the following.

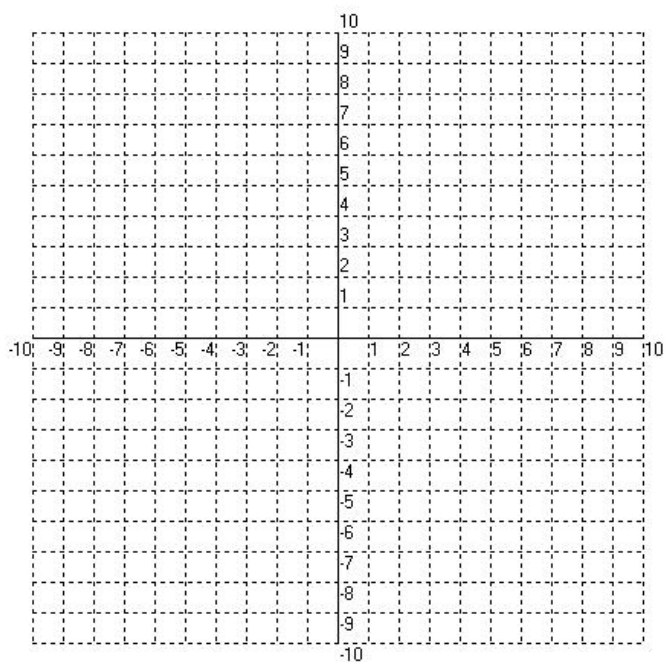Mark all important points

1. $\frac{x^2}{9} + \frac{y^2}{4} = 1$

2. $\frac{x^2}{16} + \frac{y^2}{49} = 1$

Hyperbola

$$\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$$

or $\dfrac{x^2}{a^2} - \dfrac{y^2}{b^2} = 1$

Center is (0, 0)

Center is (0, 0)

Vertices $(\pm a, 0)$

Vertices $(0, \pm b)$

Asymptotes $y = \pm \dfrac{b}{a} x$

Asymptotes $y = \pm \dfrac{b}{a} x$

Graph the following.

Mark all important points

3. $\dfrac{x^2}{64} - \dfrac{y^2}{49} = 1$

4. $\dfrac{x^2}{9} - \dfrac{y^2}{16} = 1$