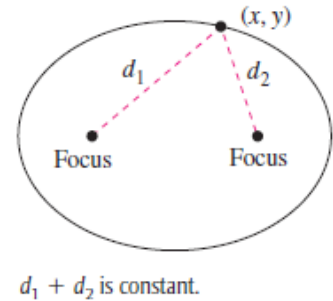


Unit #2: Algebra Topics

Lesson #3: Ellipse

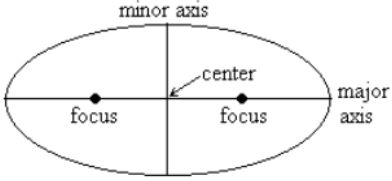
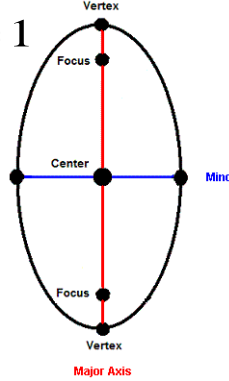
EQ:

Ellipse --- the set of all points _____ in a plane such that the _____ of the _____ from P to two fixed points, _____ and _____ called _____, is a constant.



An ellipse has _____ axes of symmetry. The _____ is the longer and the _____ is the shorter. The endpoints of the major axis are the _____. The endpoints of the minor axis are called the _____. The _____ are always on the major axis. The point of intersection of the major and minor axis is called the _____.

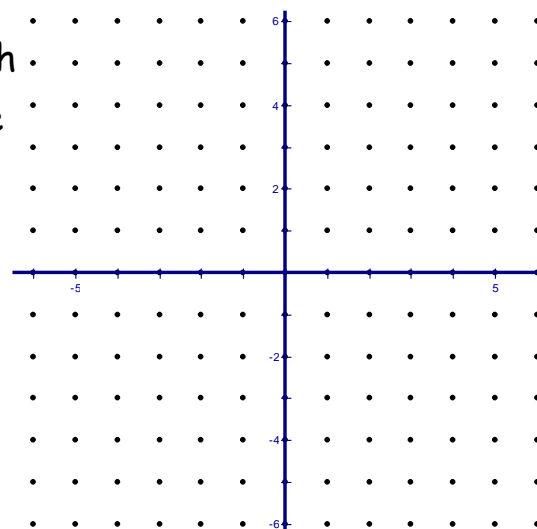
Standard Equation of an Ellipse:

	$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ 	$\frac{(x-h)^2}{b^2} + \frac{(y-k)^2}{a^2} = 1$ 
<p>Center</p>		

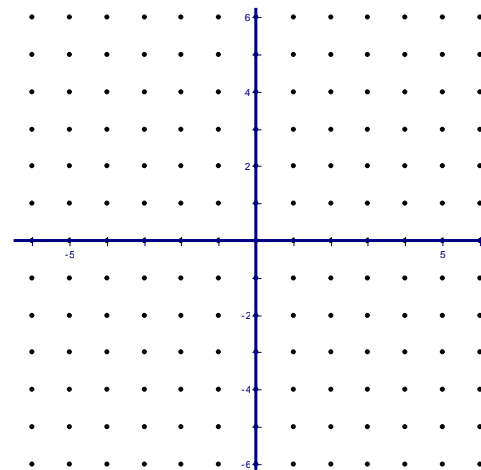
Major Axis		
Minor Axis		
Vertex		
Co-Vertex		
Foci		

Always _____ > _____ and _____ - _____ = _____

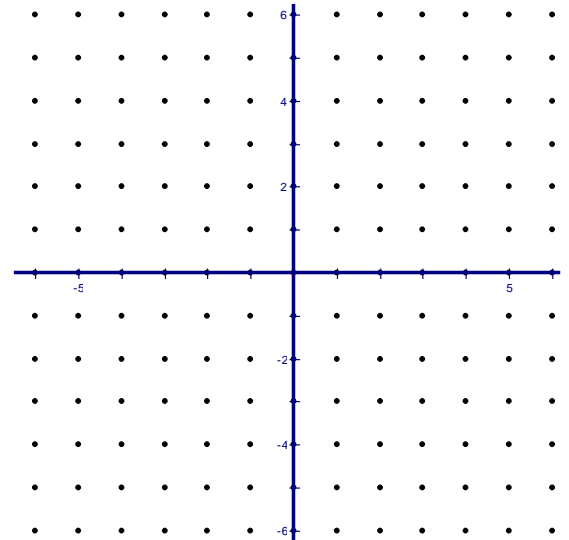
Ex. 1 Write the standard equation for an ellipse with foci at $(0, \pm 4)$ and with a minor axis of 6. Sketch the graph.



Ex. 2 Mars orbits the Sun in an elliptical path whose minimum distance from the Sun is 129.5 million miles and whose maximum distance from the Sun is 154.4 million miles. The Sun represents one focus of the ellipse. Write the standard equation for the elliptical orbit of Mars around the Sun, where the center of the ellipse is at the origin.

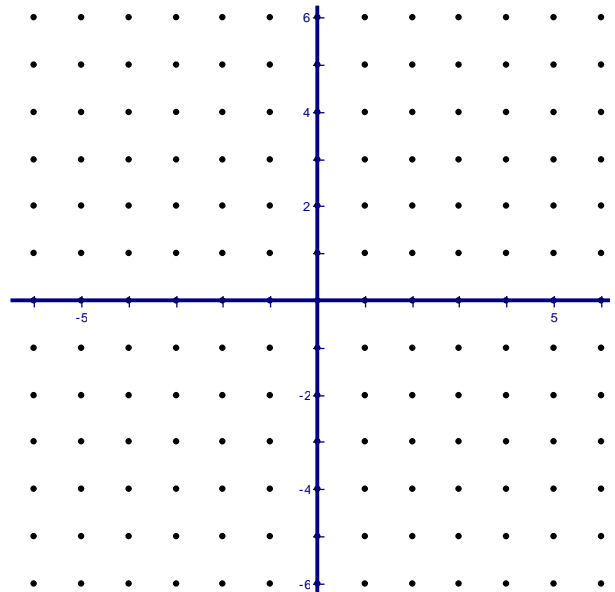


Ex. 3 Write the standard equation for an ellipse with its center at $(2, -4)$ and with a horizontal major axis of 10 and minor axis of 6. Sketch the graph.

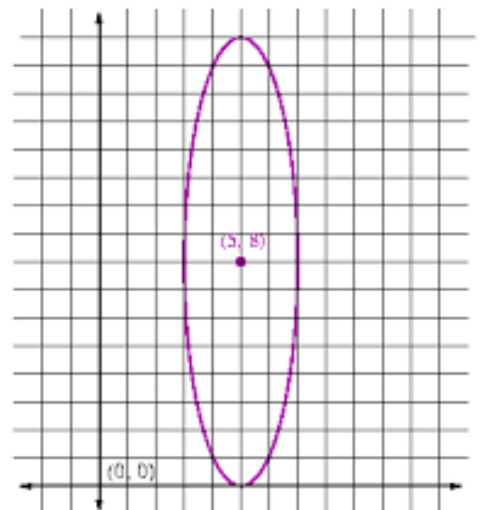


➤ IN CLASS ASSIGNMENT:

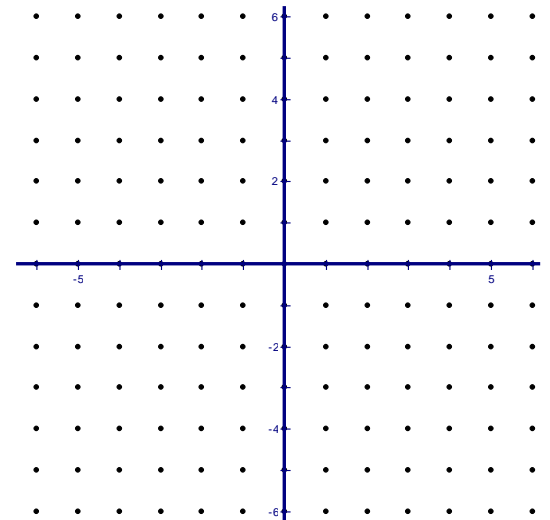
1. Graph the ellipse $\frac{x^2}{25} + \frac{(y-2)^2}{16} = 1$



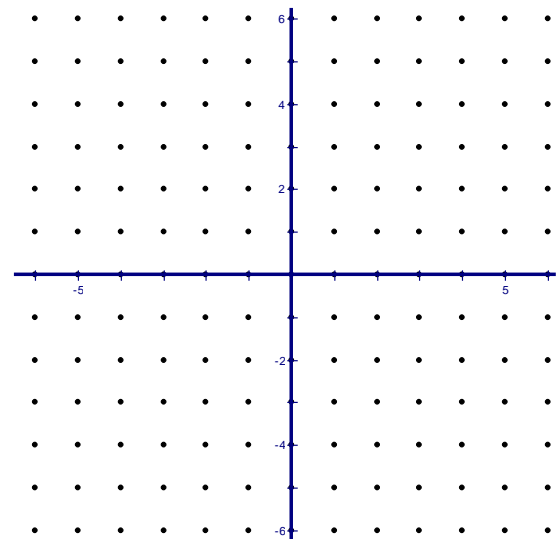
2. State the standard equation for the ellipse graphed at the right.



3. Write the standard equation for an ellipse with foci at $(-12,0)$ and $(12,0)$ and with a major axis of 26. Sketch the graph.



4. Write the standard equation for an ellipse with its center at $(-1, -2)$ and with a vertical major axis of 8 and minor axis of 4. Sketch the graph.



➤ Assignment: Precalc Textbook p. 710 - 711

#1 - 6, 8, 11, 27, 30, 31, 35, 37