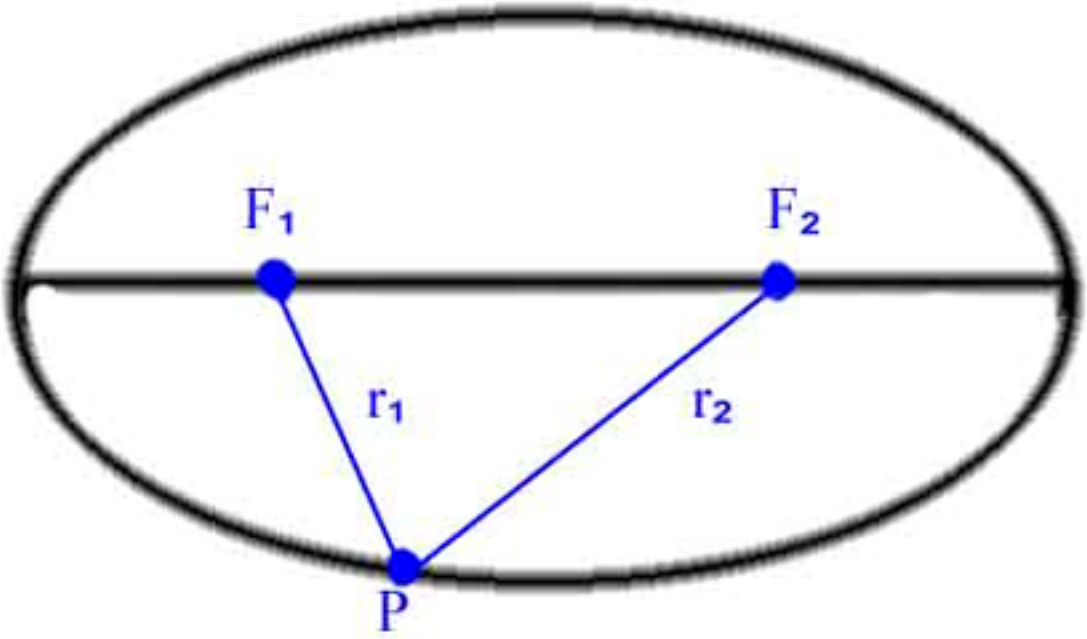
Geometry Reminder:
An ellipse is the set of all points in a plane such that the sum of the distances from any point P to two fixed points F_1 and F_2 is constant. Each fixed point is called a **focus** of the ellipse. The plural of focus is foci.
r_1 and r_2 are called **focal radii**.



Refer to Lecture Notes for Information on Ellipses in Standard Form...

http://www.lcusd.net/lchs/dclausen/algebra2/ellipses.htm

Ex 1) For the ellipse find the center, vertices, and foci, then draw the graph.

$$\frac{(x+3)^2}{25} + \frac{(y-2)^2}{16} = 1$$

horizontal center $(-3, 2)$

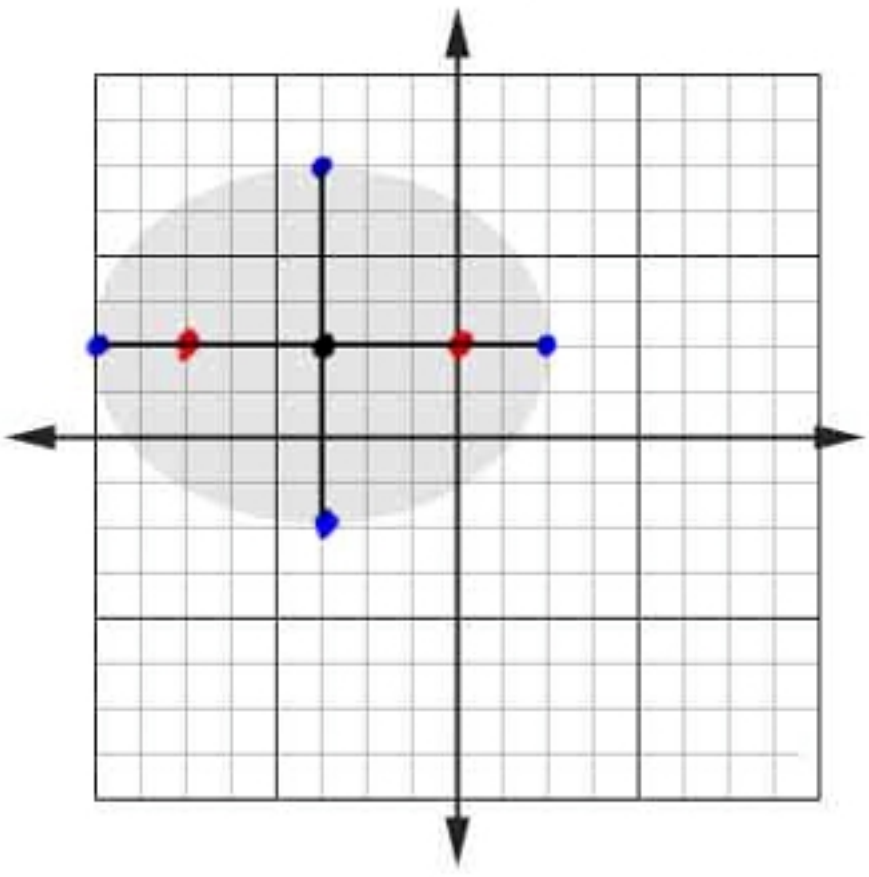
$a = 5 \leftrightarrow \quad b = 4 \updownarrow$

vertices: $(-8, 2)$ $(2, 2)$

$(-3, 6)$ $(-3, -2)$

$c = \sqrt{25 - 16} = \sqrt{9} = 3 \leftrightarrow$

foci: $(-6, 2)$ $(0, 2)$



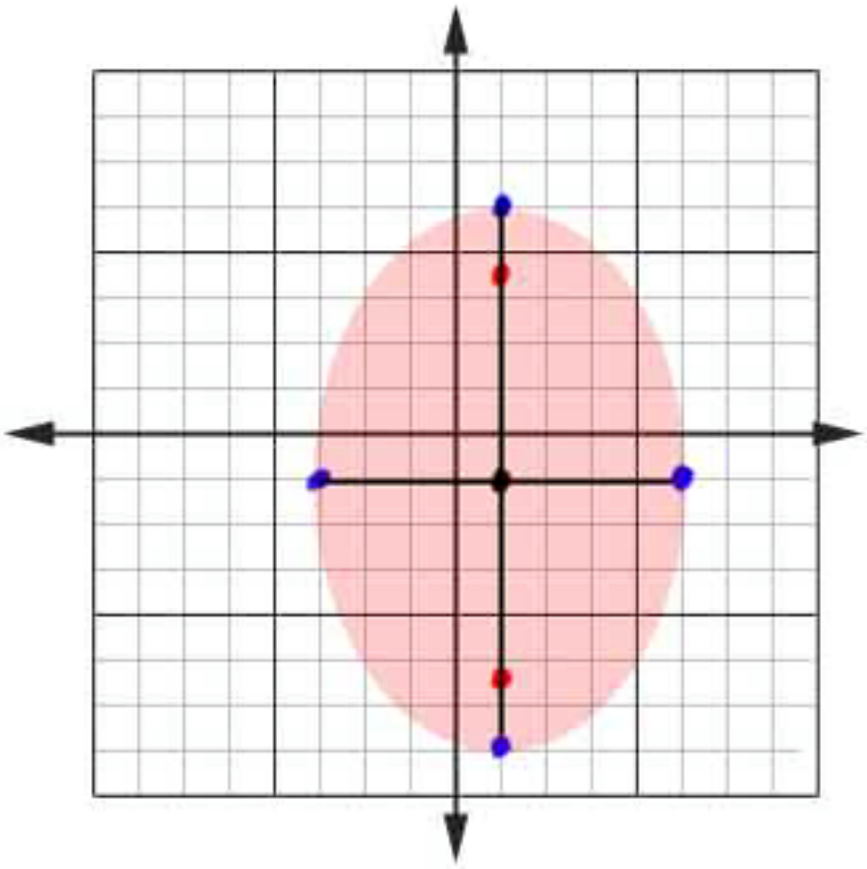
Ex 2) For the ellipse find the center, vertices, foci, and graph the ellipse:

$$\frac{(x-1)^2}{16} + \frac{(y+1)^2}{36} = 1$$

vertical center $(1, -1)$

$a = 6$ ↕ $b = 4$ ↔

vertices: $(1, 5)$ $(1, -7)$
$(-3, -1)$ $(5, -1)$

$c = \sqrt{36-16} = \sqrt{20} = 2\sqrt{5} \doteq 4.47 \doteq 4.5$ ↕

foci: $(1, 3.5)$ $(1, -5.5)$