BE-Precalc | Thursday 3-4-10

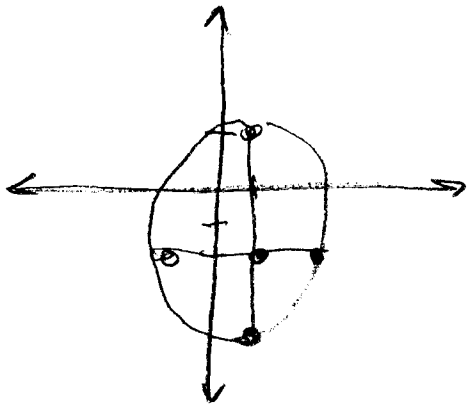
- Find the equation of the ellipse, the coordinates of the center, foci, vertices. Then graph.

$$9x^2+4y^2-18x+16y=11$$

Ans $C(1,-2)$

$F(1,-2\pm\sqrt{5})$

$V(1,1),(1,-5),(3,-2),(-1,-2)$



PRECALC – Homework Review – Pg 637 #7, 9, 9

(7) $\frac{x^2}{36} + \frac{y^2}{4} = 1$ $\Rightarrow$ $\boxed{C(h,k) = (0,0)}$ Center

$a^2 \therefore$  $\therefore \boxed{a = 6}$ $\quad \therefore \boxed{b = 2}$

(h,k)

$c^2 = a^2 - b^2 = 36 - 4 = 32$

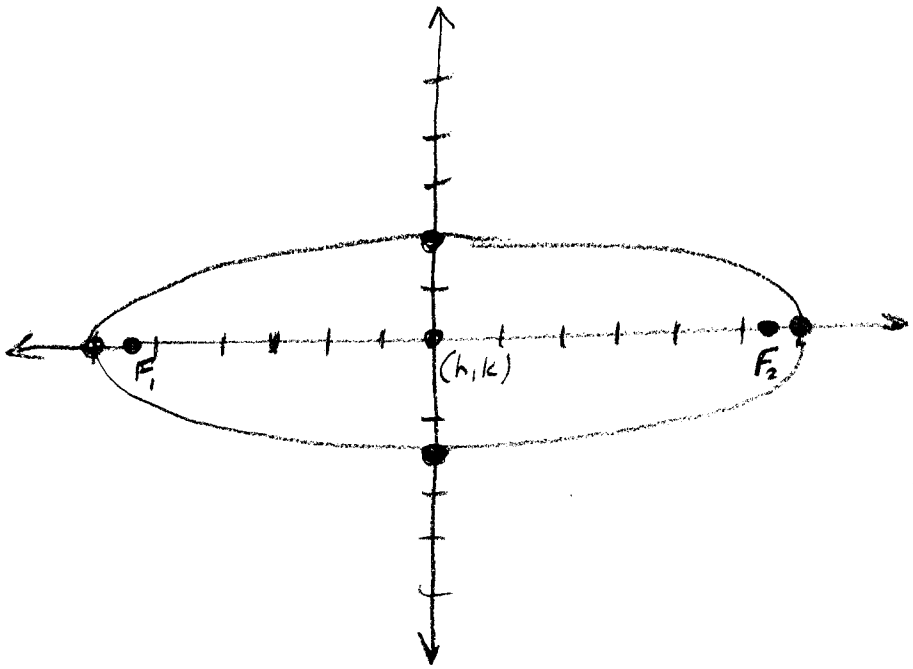
$c = \sqrt{32} = \sqrt{16}\sqrt{2} = \boxed{4\sqrt{2} = c}$

$V_{\leftrightarrow} = (0 \pm 6, 0)$ $\quad \boxed{V_{\leftrightarrow} = (\pm 6, 0)}$ Major Vertices

$V_{\updownarrow} = (0, 0 \pm 2)$ $\quad \boxed{V_{\updownarrow} = (0, \pm 2)}$ Minor Vertices

Foci $\Rightarrow (0 \pm 4\sqrt{2}, 0)$ $\quad \boxed{F = (\pm 4\sqrt{2}, 0)}$ Foci

$\approx (\pm 5.7, 0)$



⑧ $\frac{x^2}{81} + \frac{(y-4)^2}{49} = 1$ $\therefore$ $\boxed{C(0,4)}$ CENTER

$a^2 \Rightarrow$  $\Rightarrow a = 9 \quad b = 7$

$\therefore V_{\leftrightarrow} = (0 \pm 9, 4)$ $\boxed{V_{\leftrightarrow} = (\pm 9, 4)}$

$\boxed{V_{\updownarrow} = (0, 4 \pm 7)}$

Foci $\Rightarrow$

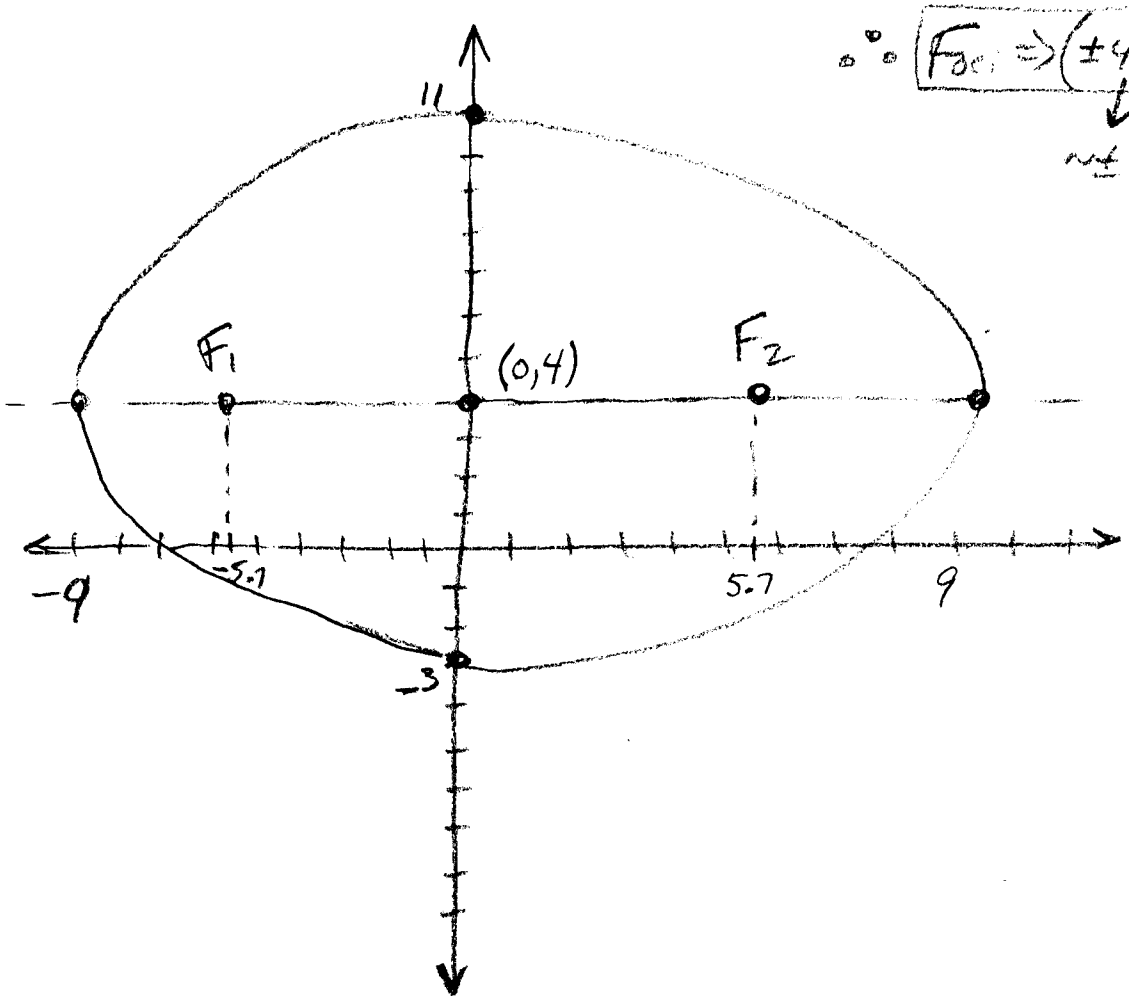
$c^2 = a^2 - b^2$

$c^2 = 81 - 49$

$c^2 = 32$

$c = 4\sqrt{2}$

$\therefore$ $\boxed{\text{Foci} \Rightarrow (\pm 4\sqrt{2}, 4)}$ $\approx \pm 5.7$



(9) $25x^2 + 9y^2 + 100x - 18y = 116$

$25x^2 + 100x \quad + 9y^2 - 18y \quad = 116$

$25(x^2 + 4x + \boxed{2^2}) + 9(y^2 - 2y + \boxed{1^2}) = 116 + 25(4) + 9$

$\frac{25(x+2)^2}{225} + \frac{9(y-1)^2}{225} = \frac{225}{225}$

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

Biggest $= a^2$ 9

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

* WATCH OUT

CENTER ↓ ↓

$\boxed{C(-2,1)}$

$\therefore a^2 = 25 \Rightarrow$  AND $\boxed{a = 5}$ $\boxed{b = 3}$

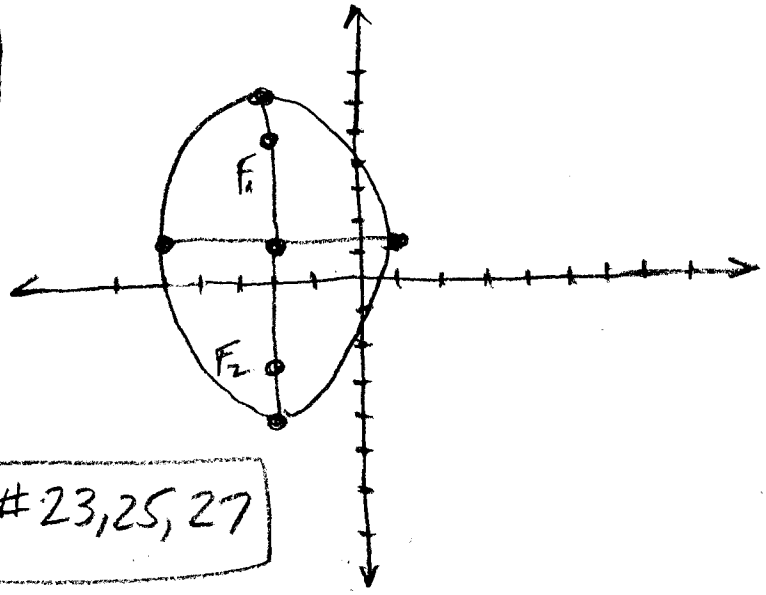
$c^2 = 25 - 9 = 16$

$\boxed{c = 4}$

$\boxed{V_{\updownarrow} = (-2, 1 \pm 5)}$

$\boxed{V_{\leftrightarrow} = (-2 \pm 3, 1)}$

$\boxed{\text{Foci} = (-2, 1 \pm 4)}$



Homework: Pg 638 #23, 25, 27