Ex Pg. 430

$4x^2 + y^2 - 16x - 4y = -16$

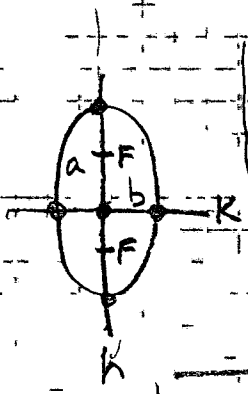
Math 112
Tues 10-23-12
Class Notes

$4x^2 - 16x + y^2 - 4y = -16$

$4(x^2 - 4x + 2^2) + 1(y^2 - 4y + 2^2) = -16 + 20$

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

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



$b^2 = 1 \therefore b = 1$

$a^2 = 4 \therefore a = 2$

$c^2 = a^2 - b^2 \therefore c = \sqrt{3}$

Midpoint $(2, 2)$ — h, k

Vertex ↕ $\Rightarrow (h, k \pm a) \Rightarrow (2, 2 \pm 2)$

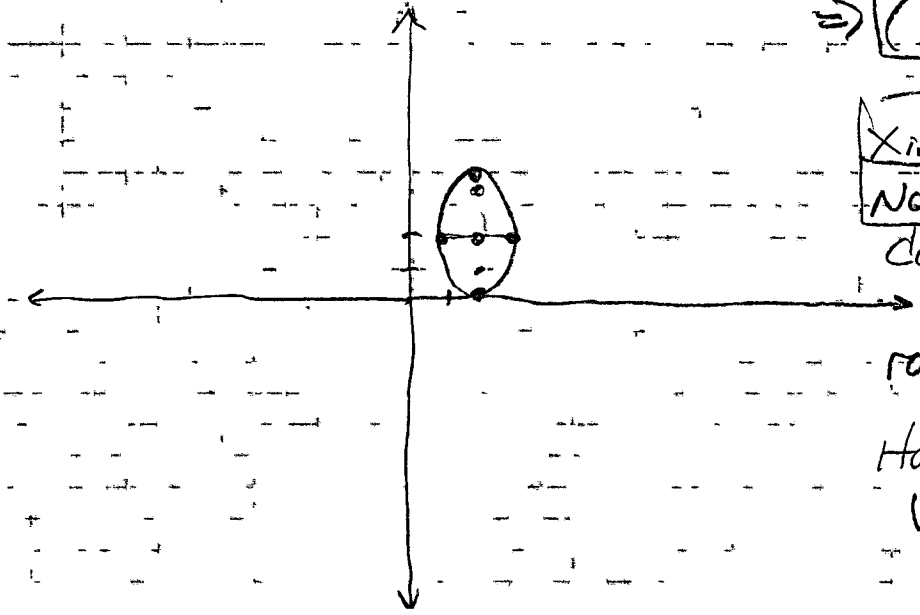
$= (2, 4), (2, 0)$

Co-Vertex ↔ $\Rightarrow (h \pm b, k) \Rightarrow (2 \pm 1, 2)$

$\Rightarrow (3, 2), (1, 2)$

Foci ↕ $\Rightarrow (h, k \pm c) \Rightarrow (2, 2 \pm \sqrt{3})$

$\Rightarrow (2, 2+\sqrt{3}), (2, 2-\sqrt{3})$



X intercept $(2, 0)$

No Y-intercepts

Domain $\{x \mid 1 \le x \le 3\}$

range $\{y \mid 0 \le y \le 4\}$

Horiz $\Rightarrow 2$

Vert $\Rightarrow 4$