Warm-Up

February 8, 2017

Graph.

$$y^2 + 4y - 5x + 8 = 0$$

$+5x \quad -8 \qquad +5x - 8$

$y^2 + 4y = 5x - 8$

$(y^2 + 4y + \boxed{4}) = 5x - 8 + \boxed{4}$

$(y+2)^2 = 5x - 4$

$\frac{(y+2)^2}{5} = \frac{5(x - \frac{4}{5})}{5}$

$\frac{1}{5}(y+2)^2 = x - \frac{4}{5}$

$+\frac{4}{5} \qquad +\frac{4}{5}$

$x = \frac{1}{5}(y+2)^2 + \frac{4}{5}$

opens right

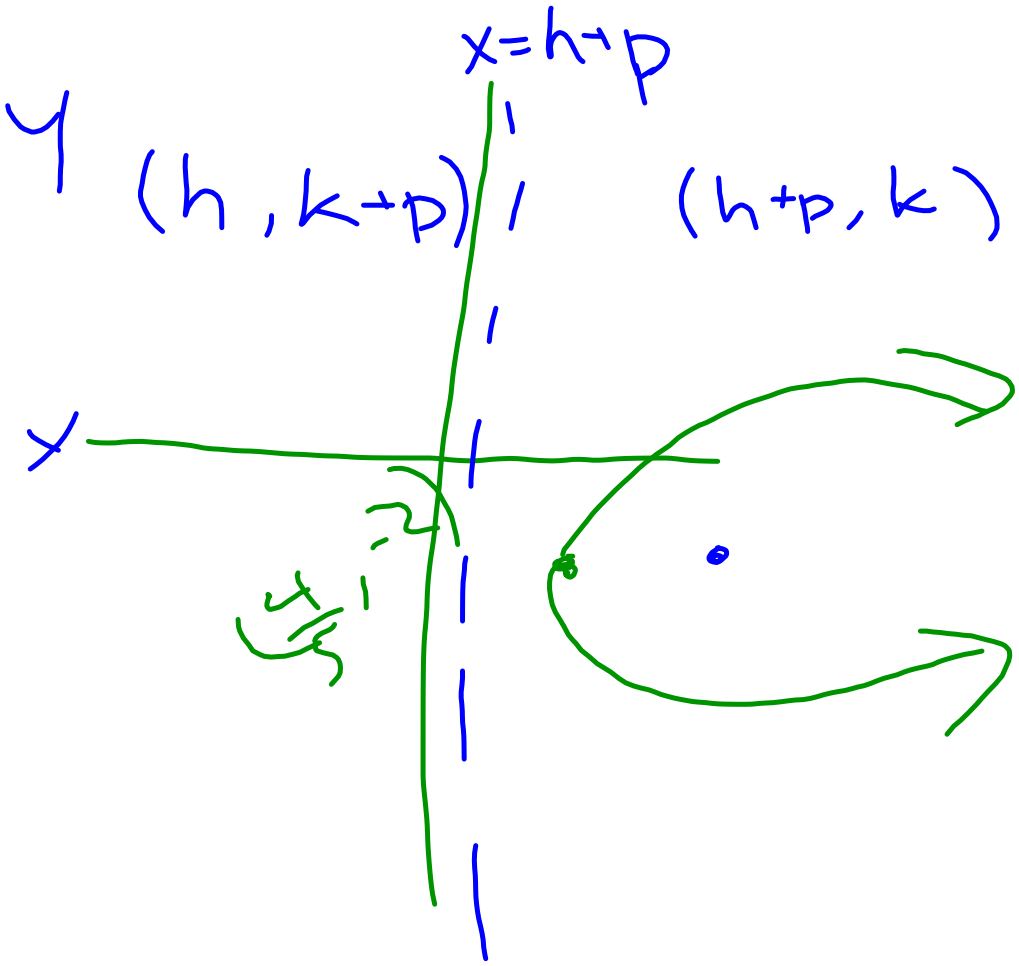
vertex $(\frac{4}{5}, -2)$

p = $5/4$

focus $(\frac{4}{5} + \frac{5}{4}, -2)$

directrix $x = h - p$

$x = \frac{4}{5} - \frac{5}{4}$


x=h+p
y
(h, k+p)
(h+p, k)
x

$$P = \frac{1}{4a} = \frac{1}{4\left(\frac{1}{5}\right)} = \frac{1}{\left(\frac{4}{5}\right)} \cdot \frac{5}{4}$$

$$P = \frac{5}{4}$$


Let's celebrate!
Yay

Graph.

H $x = -8(y+3)^2 - 5$

$3+1=4$

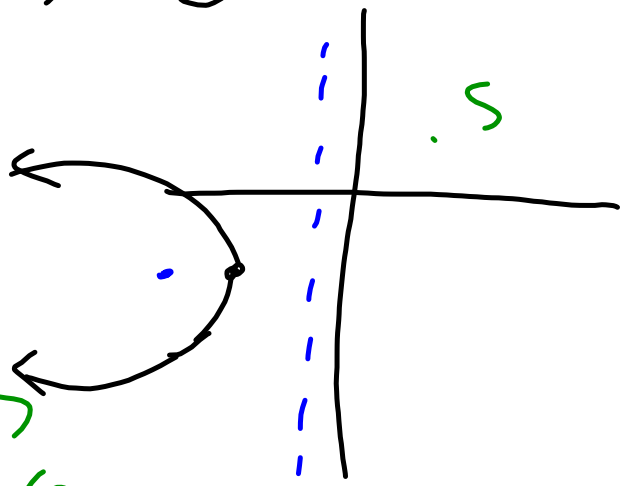
Opens left .5

vertex $(-5, -3)$ .5

$p = \frac{1}{4a} = \frac{1}{4(-8)} = \frac{1}{-32}$ .5

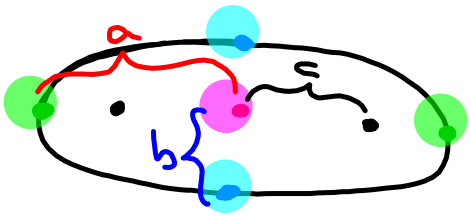
focus $(-5 + -\frac{1}{32}, -3)$ .5

directrix $x = -5 - -\frac{1}{32}$ .5



Ellipse Standard Form

$$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$$



center — (h, k)

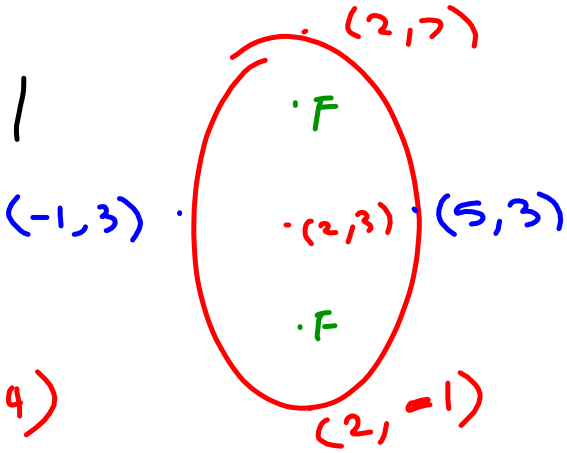
vertices — $(h \pm a, k)$

covertices — $(h, k \pm b)$

foci — $(h \pm c, k)$

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

1. $\frac{(x-2)^2}{9=b^2} + \frac{(y-3)^2}{16=a^2} = 1$



Center (2,3)

$a = 4$ $b = 3$

vertices $(h, k \pm a)$ $(2, 3 \pm 4)$

covertices $(h \pm b, k)$ $(2 \pm 3, 3)$

$c = \sqrt{7}$ $a^2 - b^2 = c^2$, $16 - 9 = \sqrt{7}^2$

foci $(h, k \pm c)$ $(2, 3 \pm \sqrt{7})$