

Warm-up

February 7, 2017

Go to

<https://www.desmos.com/calculator/8keeh1pt5l>

What does a represent? How does it affect the graph?

What do h and k represent? How do they affect the graph?

Let's graph #9 together.

Opens down

Vertex (3, -1)

$$p = \frac{1}{4a} = \frac{1}{4(-1)} = -\frac{1}{4}$$

Focus (h, k+p) (3, -1 + -\frac{1}{4})

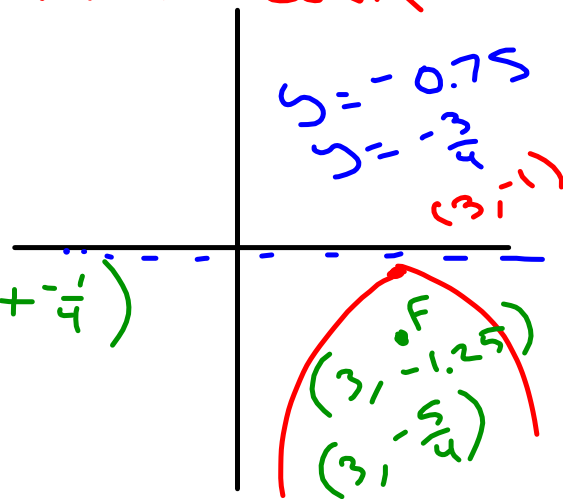
Directrix y = k - p

$$y = -1 - \frac{1}{4}$$

$$y = -1 + \frac{1}{4}$$

$$y = -1(x-3)^2 - 1$$

$a < 0$ opp Same
 vertical down



$$y = a(x-h)^2 + k$$

You try #14.

$$x = y^2 - 6y + 8$$

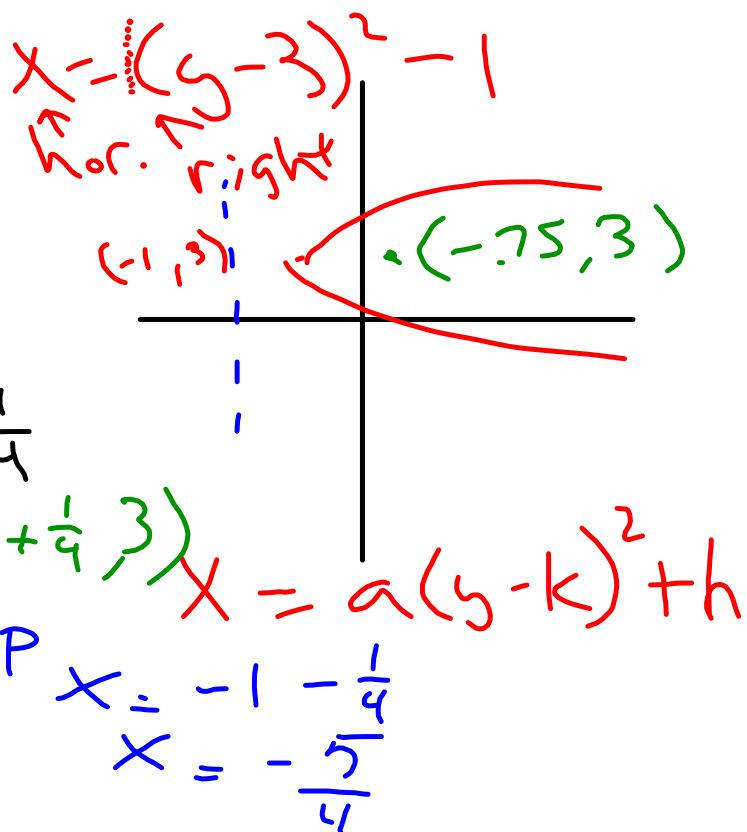
Opens right

Vertex $(-1, 3)$

$$p = \frac{1}{4a} = \frac{1}{4(1)} = \frac{1}{4}$$

Focus $(h+p, k)$ $(-1 + \frac{1}{4}, 3)$

Directrix $x = h - p$



$$x = y^2 - 6y + 8$$

$$x - 8 = y^2 - 6y$$

$$x - 8 + 9 = 1(y^2 - 6y + 9)$$

$$x + 1 = 1(y - 3)^2$$

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

$$x + 1 = (y - 3)^2$$

$$x = (y - 3)^2 - 1$$

$$16x^2 + 25y^2 + 32x + 150y - 159 = 0$$

$$\frac{16x^2 + 25y^2 + 32x + 150y}{400} = \frac{159}{400}$$

$$16(x^2 + 2x + 1) + 25(y^2 + 6y + 9) = 159 + 16 + 225$$

$$\frac{16(x+1)^2}{400} + \frac{25(y+3)^2}{400} = \frac{400}{400}$$

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

Standard form
of an
Ellipse

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

$3=b$
 $4=a$

Major Axis Vertical

Center (2, 3)

Vertices (h, k ± a)

Co-vertices _____

Foci _____

