

4.3 day 2

Work backwards to write the equation of parabola...

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

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

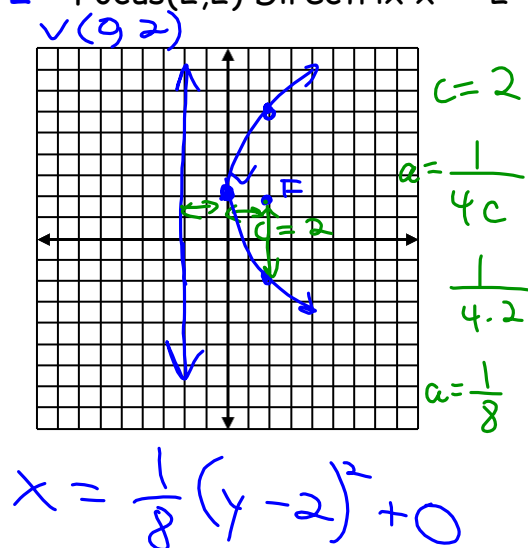
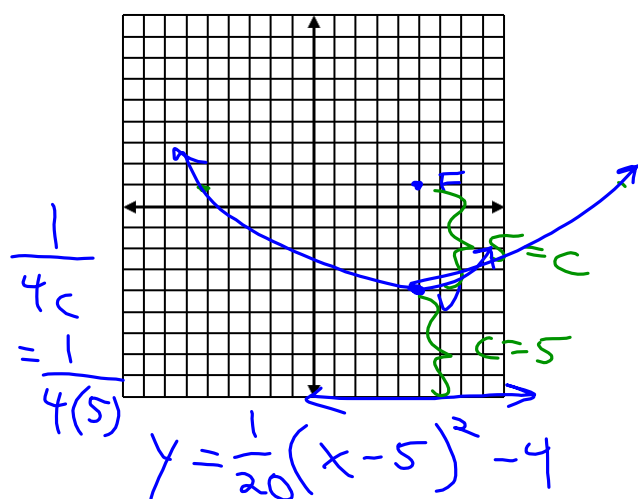
$$x = -a(y - k)^2 + h$$

Recall: $a = 1/4c$

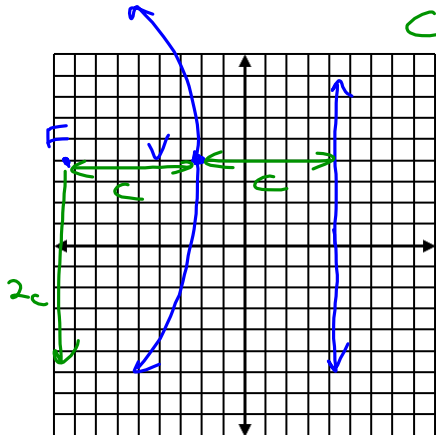
Use the given information to write the equation of the parabola.

Ex. 1 Vertex (5, -4), Focus (5, 1)

Ex. 2 Focus(2,2) Directrix $x = -2$



Ex. 4 $V(-2,4)$ directrix $x=17/4 = 4\frac{1}{4}$



$c = 6\frac{1}{4}$
or $\frac{25}{4}$

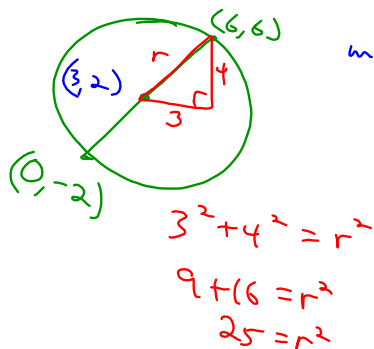
$$a = \frac{1}{4c} = \frac{1}{4(\frac{25}{4})} = \frac{1}{25}$$

$$x = -\frac{1}{25}(y - 4)^2 - 2$$

Circles

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

Ex. 4 Write the equation of the circle with endpoints of the diameter at $(6,6)$ & $(0,-2)$.



midpoint is center $d = \sqrt{(6-0)^2 + (6-(-2))^2}$
 $\frac{6+0}{2}, \frac{6+(-2)}{2} = \sqrt{3^2 + 4^2}$
 $(3, 2) = \sqrt{9+16}$
 $= \sqrt{25} = 5$
 radius

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