

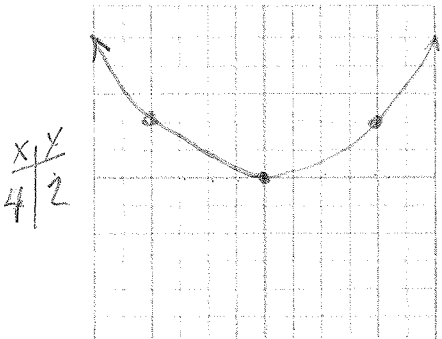
MORE PRACTICE: Parabolas 2

For the given parabola, find the proper values:

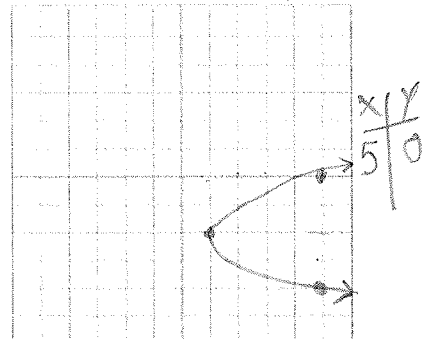
	1. $y = -(x+1)^2 - 3$	2. $x = 2(y-3)^2 + 6$	3. $x = 4y^2 - 5$
direction of opening:	<u>DOWN</u>	<u>RIGHT</u>	<u>RIGHT</u>
	$h = \underline{-1}$ $k = \underline{-3}$	$h = \underline{6}$ $k = \underline{3}$	$h = \underline{-5}$ $k = \underline{0}$
	$a = \underline{-1}$	$a = \underline{2}$	$a = \underline{4}$
The vertex:	<u>$(-1, -3)$</u>	<u>$(6, 3)$</u>	<u>$(-5, 0)$</u>
The focus:	<u>$(-1, -2\frac{3}{4})$</u>	<u>$(6\frac{1}{8}, 3)$</u>	<u>$(-\frac{4\frac{15}{16}, 0)$</u>
The directrix:	<u>$y = -3\frac{1}{4}$</u>	<u>$x = 5\frac{7}{8}$</u>	<u>$x = -5\frac{1}{6}$</u>
The axis of symmetry	<u>$x = -1$</u>	<u>$y = 3$</u>	<u>$y = 0$</u>

Graph each parabola:

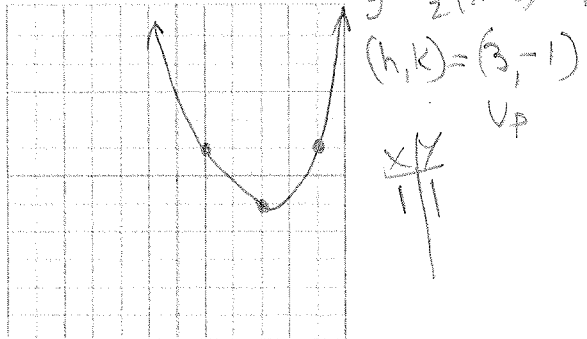
4. $y = \frac{1}{8}x^2$ $(h,k) = (0,0)$
UP



5. $x = (y+2)^2 + 1$ $(h,k) = (1,-2)$
RIGHT



6. $2y+2 = (x-3)^2 - 2$ $2y = (x-3)^2 - 2$
 $y = \frac{1}{2}(x-3)^2 - 1$ $(h,k) = (3,-1)$
UP



Write an equation for each parabola described below:

7. vertex = (0, 4) and focus = (0, 8)
 $h=0, k=4$ $4 + \frac{1}{4a} = 8$ $\frac{1}{4a} = 4$ $\frac{1}{a} = 16$ $a = \frac{1}{16}$ $y = \frac{1}{16}x^2 + 4$

8. vertex = (2, 4) and focus = (4, 4)
 $2 + \frac{1}{4a} = 4$ $\frac{1}{4a} = 2$ $a = \frac{1}{8}$ $x = \frac{1}{8}(y-4)^2 + 2$

9. focus = (-1, 3) and directrix is $y = 2$
 $2 = k - \frac{1}{4a}$ $5 = 2k$ $2 = 5\frac{1}{2} - \frac{1}{4a}$ $4a = 2$ $a = \frac{1}{2}$ $y = \frac{1}{2}(x+1)^2 + 5\frac{1}{2}$
 $3 = k + \frac{1}{4a}$ $5\frac{1}{2} = k$ $-\frac{1}{2} = -\frac{1}{4a}$

10. vertex = (-1, -1), axis of symmetry is $x = -1$, the measure of the latus rectum = 8, and $a < 0$ Down
 $\frac{1}{a} = 8$ $a = \frac{1}{8}$ $y = -\frac{1}{8}(x+1)^2 - 1$