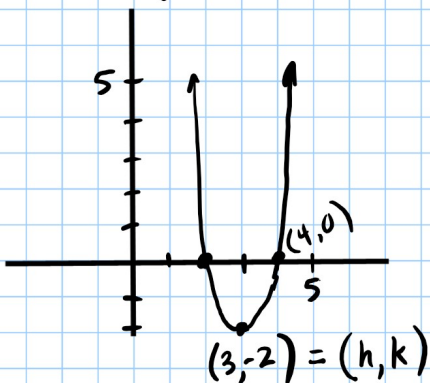


WARMUP

Write an equation for each parabola:

1)



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

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

$$0 = a(4-3)^2 - 2$$

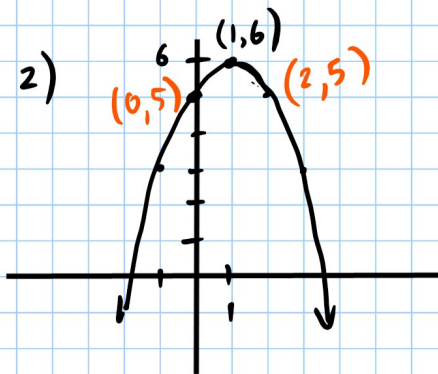
$$0 = a \cdot 1^2 - 2$$

$$0 = a - 2$$

$$2 = a$$

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

2)



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

1) $y = x^2 - 8x + 12$

Follow same steps for 3 and 4

a) x-ints $(1x^2 - 8x + 12 = 0)$

$$\begin{array}{r} 12 \\ -6 \quad -2 \\ -8 \end{array}$$

$$(x-6)(x-2) = 0$$

$$x-6=0 \quad x-2=0$$

$$x=6 \quad x=2$$

$$(6, 0) (2, 0)$$

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

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

b) Axis of symmetry - halfway between x-ints

$$x = 4$$

c) $y = 4^2 - 8 \cdot 4 + 12$

$$y = 16 - 32 + 12 = -4$$

$$(4, -4)$$

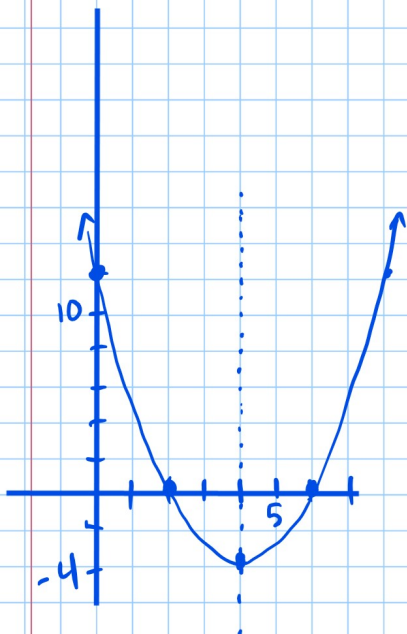
h, k

d) up

e) y-int: $y = 0^2 - 8 \cdot 0 + 12$

$$y = 12$$

$$(0, 12)$$



$$4) y = -x^2 + 4x - 3$$

$$a) -x^2 + 4x - 3 = 0$$

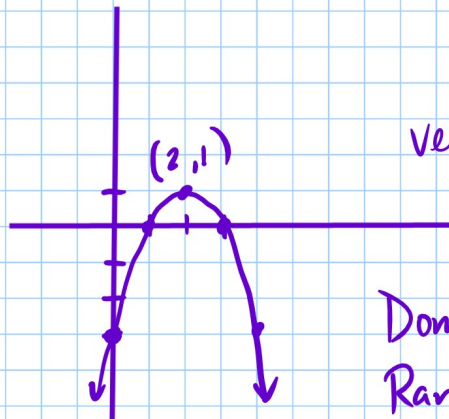
$$a \rightarrow -1(x^2 - 4x + 3) = 0$$

$$\begin{array}{r} 3 \\ -3 \end{array} \begin{array}{r} -1 \\ -4 \end{array}$$

$$-(x-3)(x-1) = 0$$

$$x=3, x=1$$

$$(3,0), (1,0)$$



b) Axis of Symmetry:

$$x=2$$

c) Vertex: $y = -x^2 + 4x - 3$

$$y = -2^2 + 4 \cdot 2 - 3$$

$$y = -4 + 8 - 3 = 1$$

$$(2, 1)$$

d) down

$$e) y\text{-int: } -0^2 + 4 \cdot 0 - 3 = -3$$

$$(0, -3)$$

$$\text{Vertex form: } y = a(x-h)^2 + k$$

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

$$\text{Domain} = (-\infty, \infty)$$

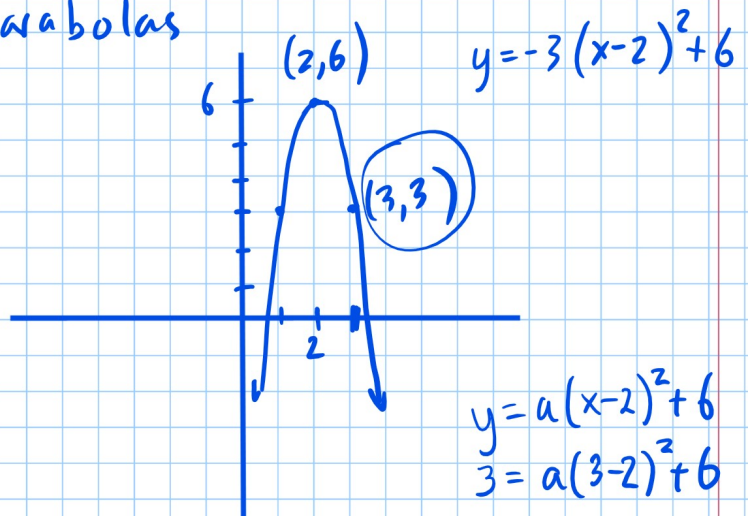
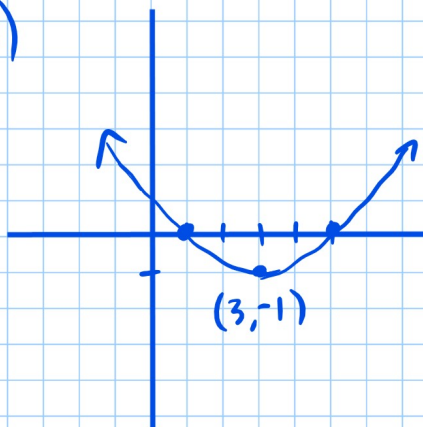
$$\text{Range} = (-\infty, 1]$$

On notebook paper:

1) Follow the same steps for $y = x^2 - 6x - 7$

2) Find equations for these 2 parabolas

a)



$$y = a(x-2)^2 + 6$$

$$3 = a(3-2)^2 + 6$$