The general form of a "shifted" quadratic is:

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

step pattern

v.s.

h.s. changes signs

This form is called vertex form. When graphing **remember that the "h" value is the opposite sign.

(h, k)

Describe the translations for $y=(x-1)^2+3$. State the vertex. Then make a sketch of the relation.

H.S.- right 1

V.S.- up 3

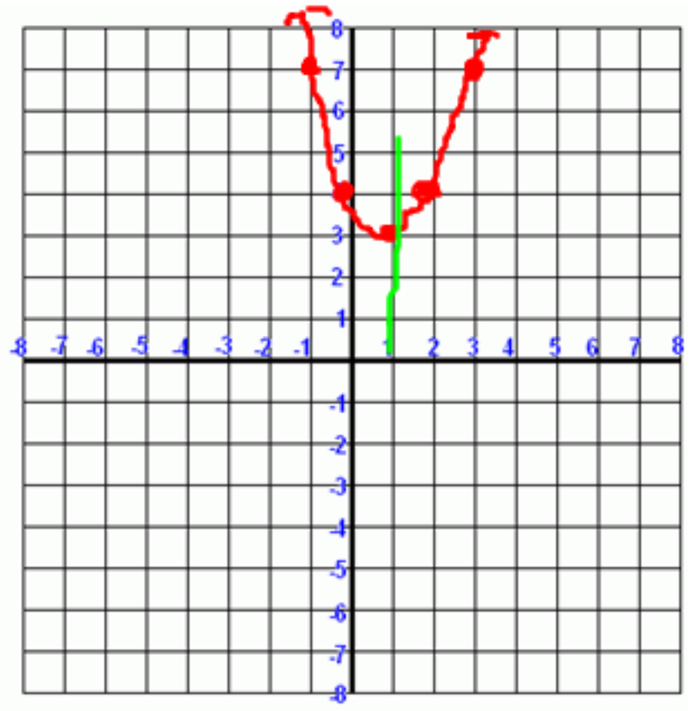
Max/Min- min

Stretch/Shrink- none

AoS- x = 1

Opening- opening up

Vertex- (1, 3)



Describe the translations for $y=(x+2)^2-4$. State the vertex. Then make a sketch of the relation.

Describe the translations for $y=(x+2)^2-4$ (x y). State the vertex. Then make a sketch of the relation.

vertex → (−2, −4)

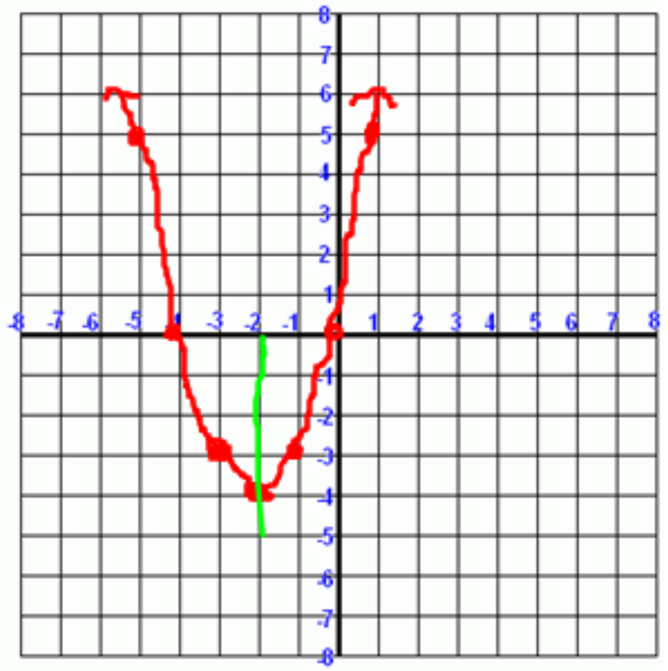
h.s → left 2

v.s → down 4

a.o.s → $x=-2$

opens up

min



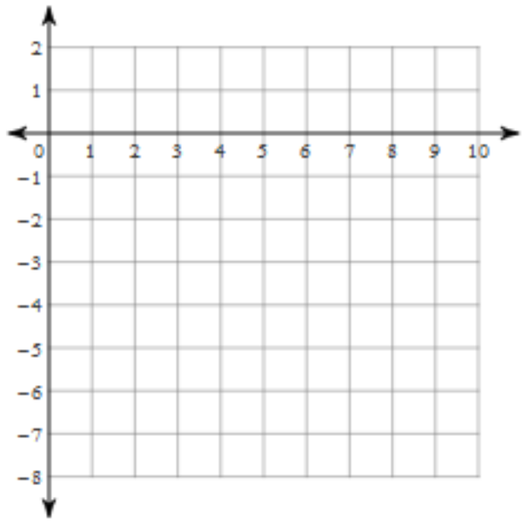
Math10P Assignment Name_____

Graphing Quadratic Functions in Vertex Form

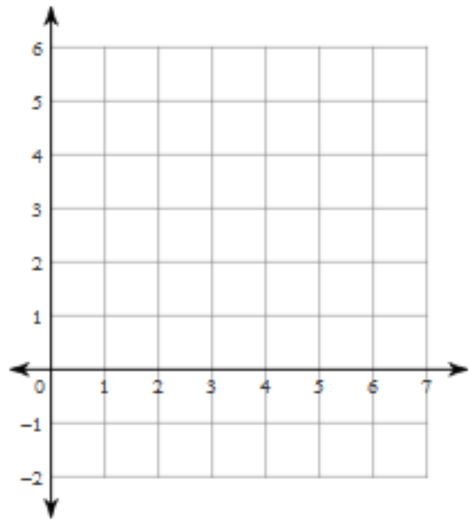
Date_____

Sketch the graph of each function. State the horizontal and vertical shifts, max/min, stretch/shrink, axis of symmetery, direction of openning, and the vertex

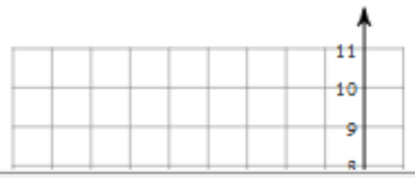
1) $y = -2(x-3)^2 + 1$



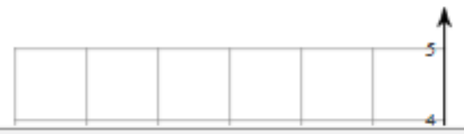
2) $y = \frac{1}{2}(x-4)^2 + 1$



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

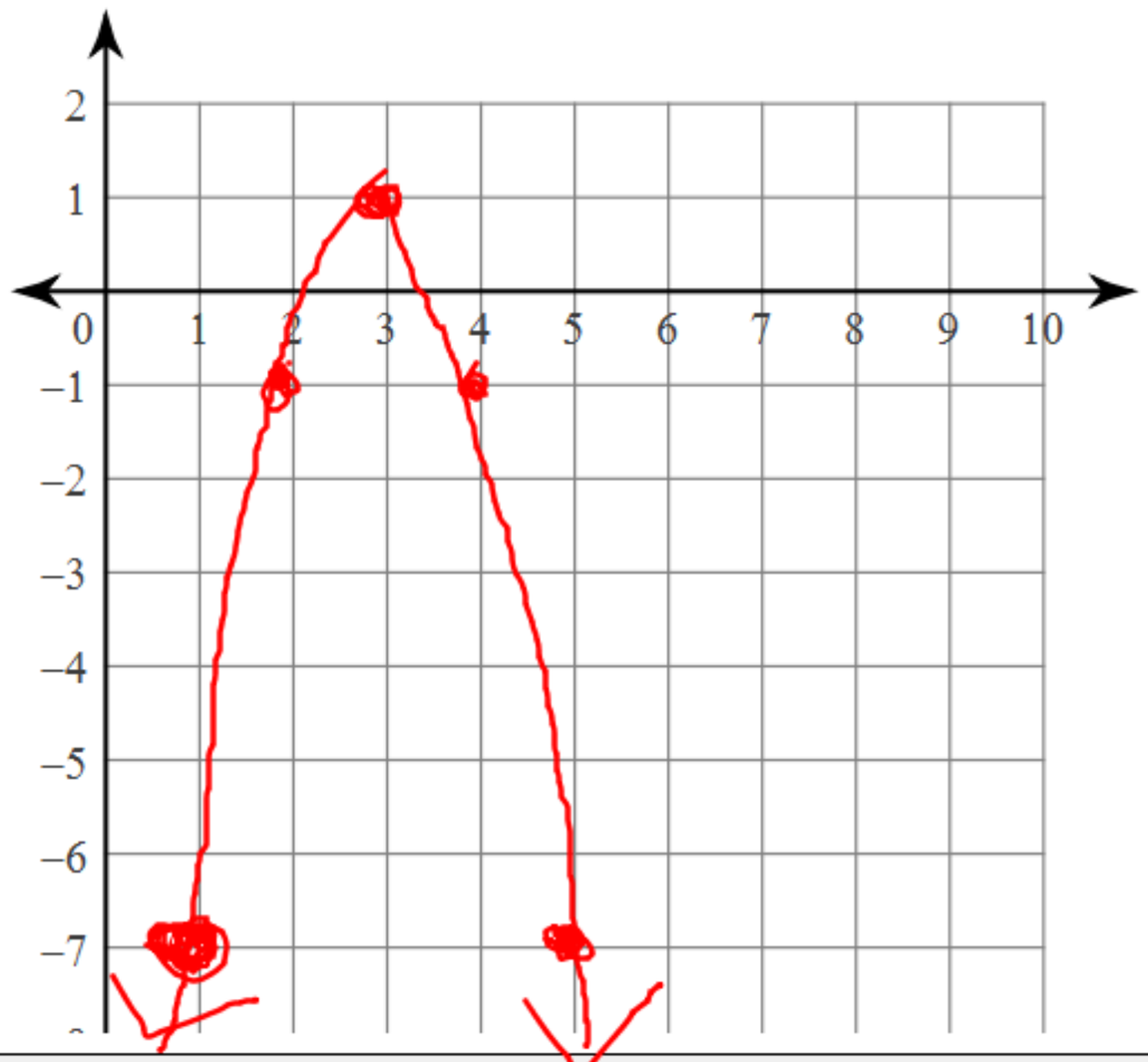


4) $y = -\frac{1}{2}(x+2)^2 + 3$



Sketch the graph of each function. State the horizontal and vertical shifts, max/min, stretch/shrink, axis of symmetery, direction of openning, and the vertex

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



vertex → (3, 1)

h.s → right 3

v.s → up 1

aos → x = 3

max

shrink by 2

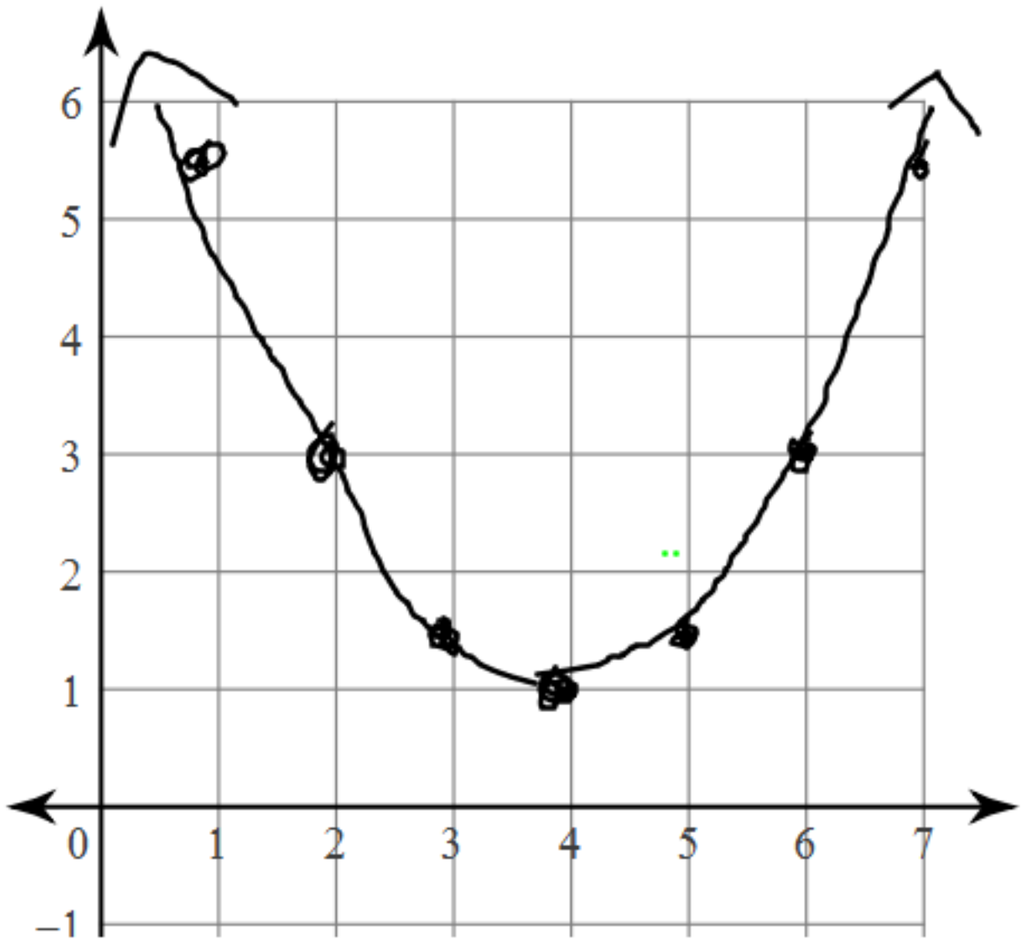
opens down

Sketch the graph of each function. State the horizontal and vertical shifts, max/min, stretch/shrink, axis of symmetery, direction of openning, and the vertex

vertex (4, 1)

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

x y



over 1, up 1×0.5 = 0.5

over 1, up 3×0.5 = 1.5

over 1, up 5×0.5 = 2.5

stretch by $\frac{1}{2}$