

Course: Grade 10 Mathematics

The general form of a "shifted" quadratic is:

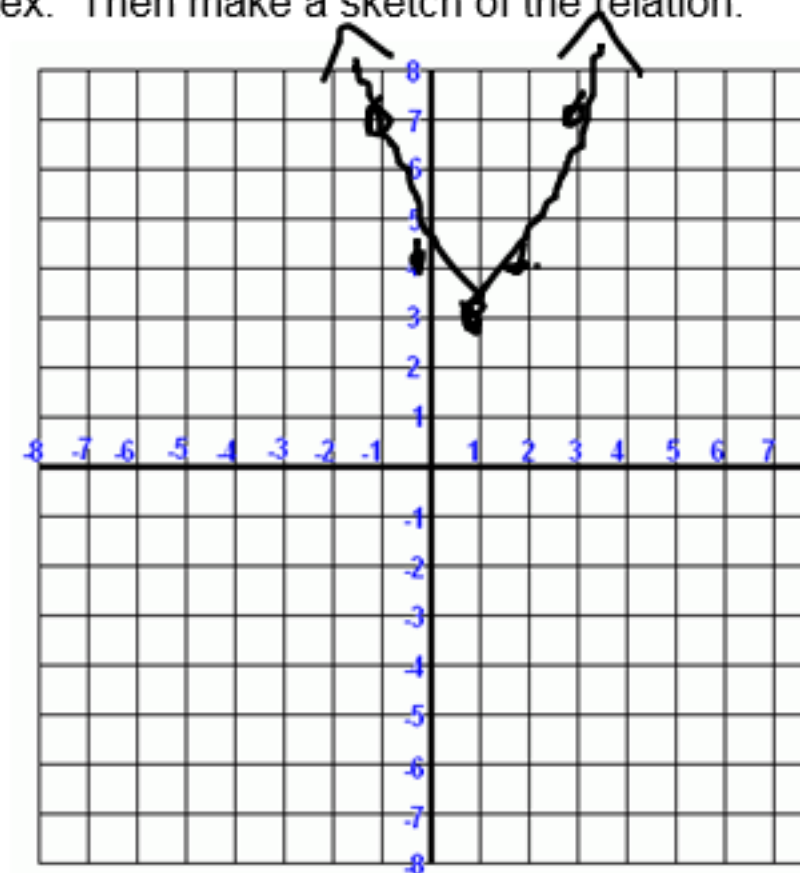
$$y = a(x - h)^2 + k$$

'h' flips sign

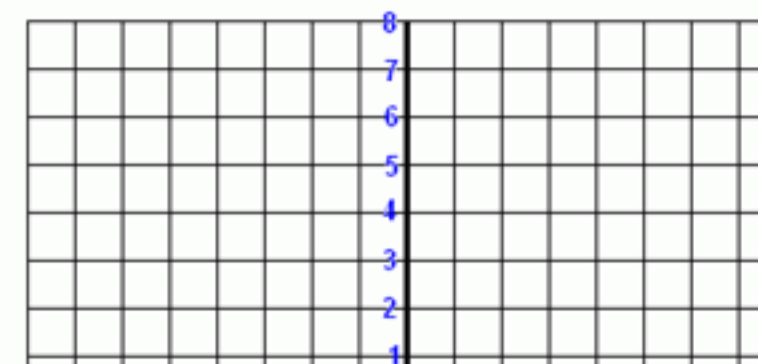
This form is called vertex form. When graphing **remember that the "h" value is the opposite sign.

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- up
 Vertex- $(1, 3)$



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



Stretch/Shrink-

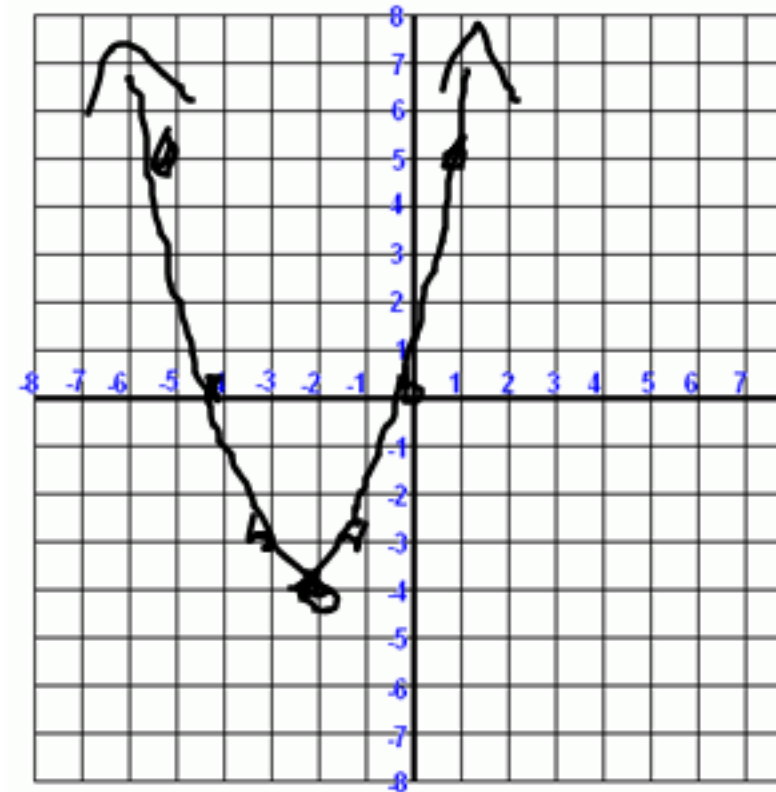
AoS-

Opening-

Vertex-

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

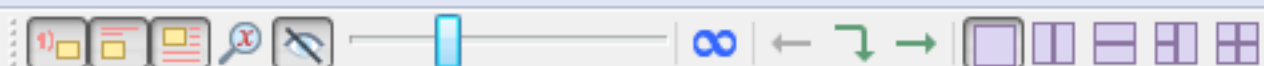
h/s. $\rightarrow$ left + 2
 v/s $\rightarrow$ down 4
 vertex $\rightarrow (-2, -4)$
 sl. or st. $\rightarrow$ none
 a.o.s $\Rightarrow x = -2$
 opening $\rightarrow$ up
 min



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Fill in the chart

	$y = -2(x-1)^2 + 4$	$y = (x-3)^2$	$y = 3(x+4)^2 + 2$
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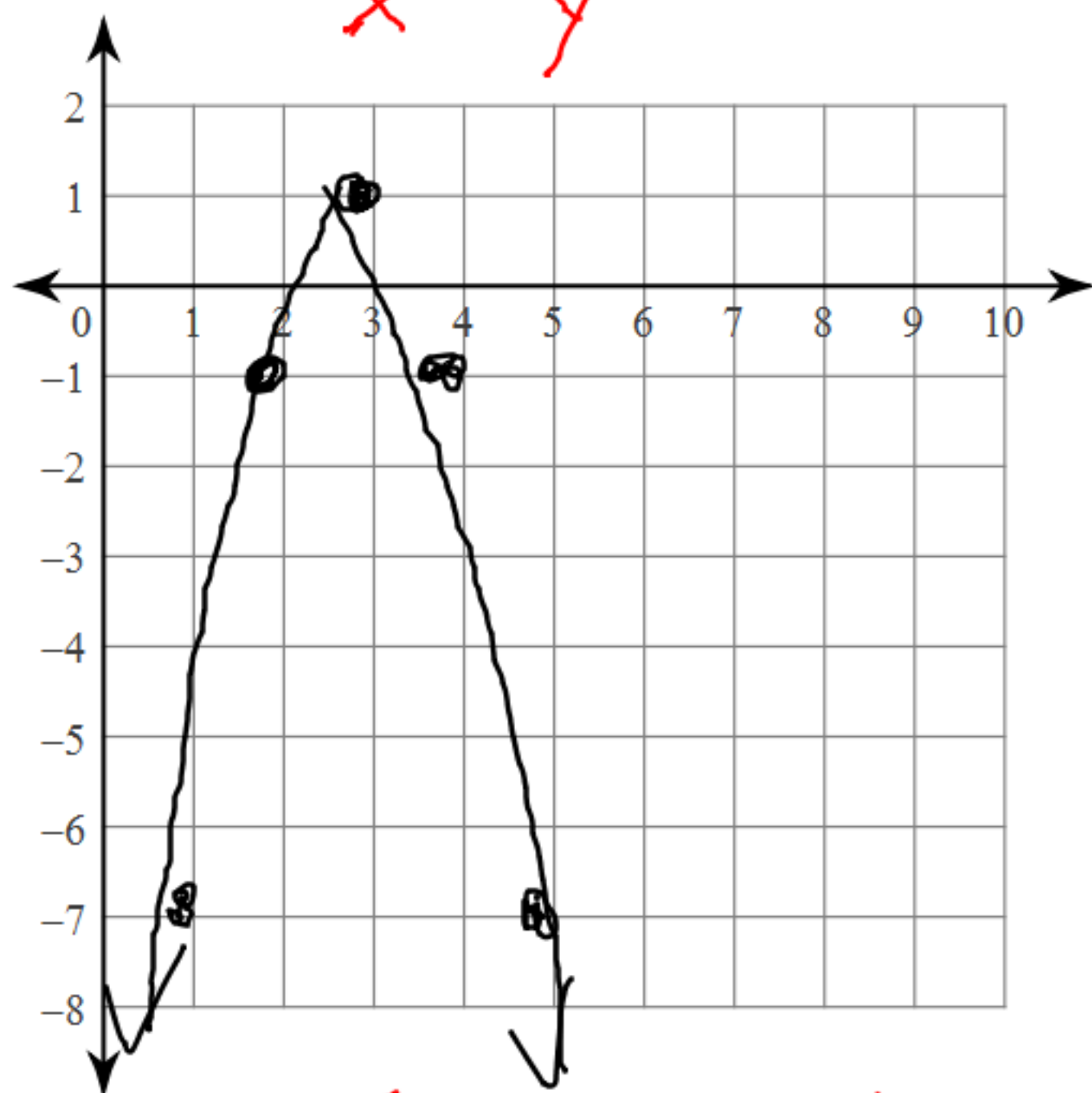
Sketch the graph of each function. State the horizontal and vertical shifts, max/min, stretch/shrink, axis of symmetry, direction of opening, and the vertex

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

h

x

y



vertex (3, 1)

h.s. right 3

v.s. up 1

shrink by 2

opens down

max

a.o.s. $x = 3$

over 1, down $1(-2) = -2$

over 1, down $3(-2) = -6$