Find each product.

1) $6x(5x - 1)$

$= 30x^2 - 6x$

9) $(6n+4)(n+8)$

$= 6n^2 + 48n + 4n + 32$

$= 6n^2 + 52n + 32$

Solve each equation by factoring.

1) $x^2 - 48 = 2x$

$-2x \quad -2x$

$= x^2 - 2x - 48$

$= x^2 + 6x - 8x - 48$

$x \quad -8$

$= x(x+6) - 8(x+6)$ ✓

$= (x-8)(x+6)$

$x-8=0 \quad x=8$

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

$\times \; -48$

$+ \; -2$

$1, 48$

$2, 24$

$6, -8$

S.S. $\{8, -6\}$

Solve each equation by factoring.

$-9v \quad -9v$

7) $3v^2 = 9v$

$= 3v^2 - 9v$

$\overline{3v} \quad \overline{3v}$

$= 3v(v-3)$

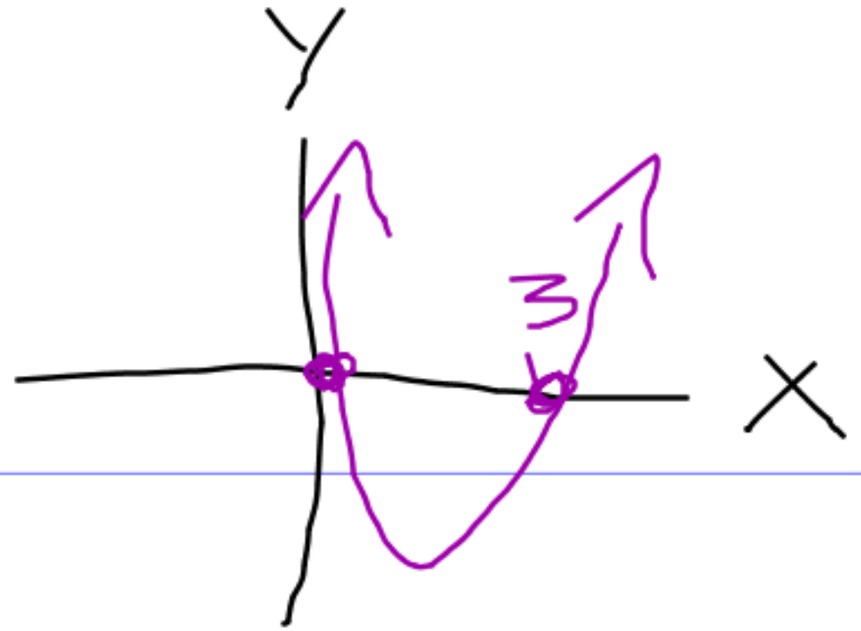
$3v = 0$

$\overline{3} \quad \overline{3}$

$v = 0$

$v - 3 = 0$

$v = 3$



S.S. $\{0, 3\}$

Identify the vertex, axis of symmetry, horizontal shift, vertical shift, x intercepts, max/min, and direction of openning of each. Then sketch the graph.

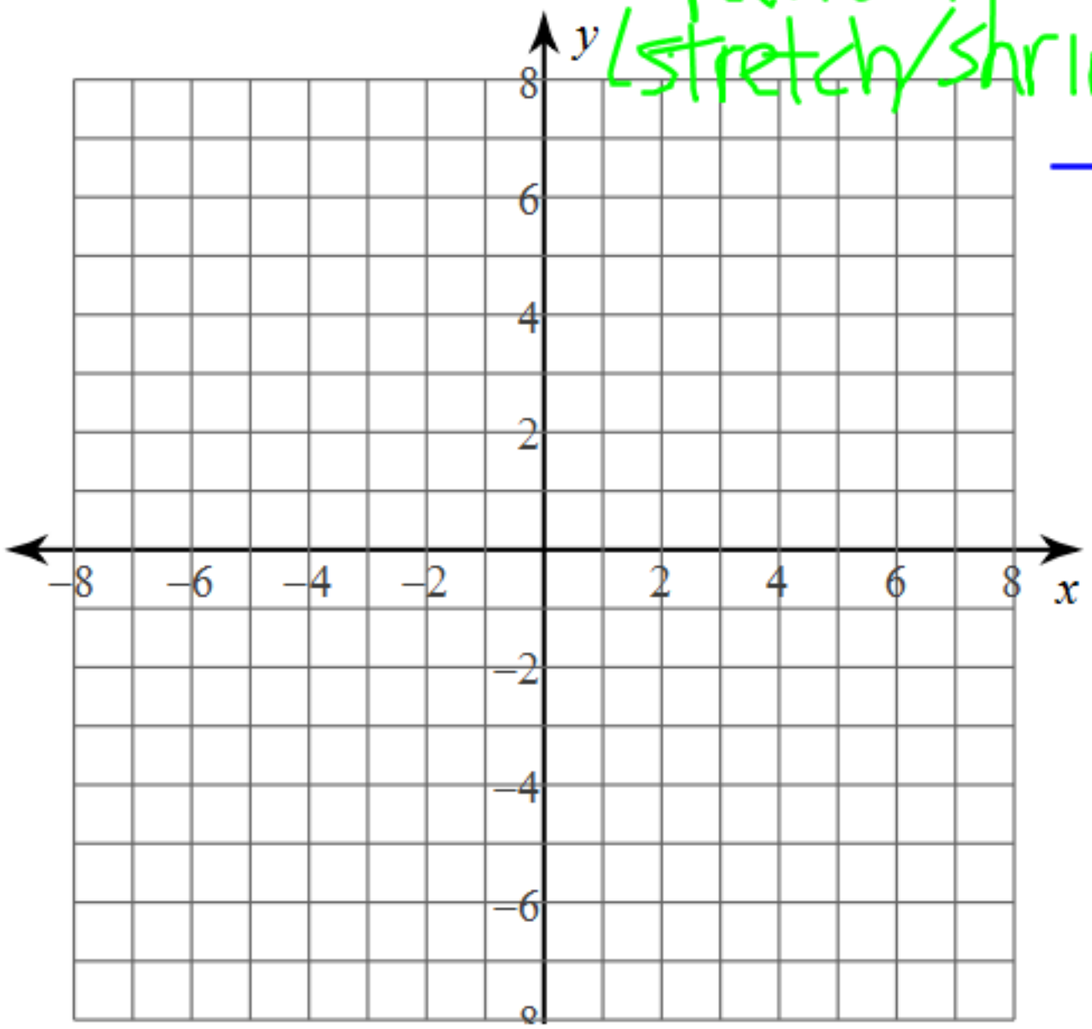
$y = a(x-h)^2 + k$ vertex form

step pattern (stretch/shrink)

(x, y)

* h (x) changes signs

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



standard form

$ax^2 + bx + c$

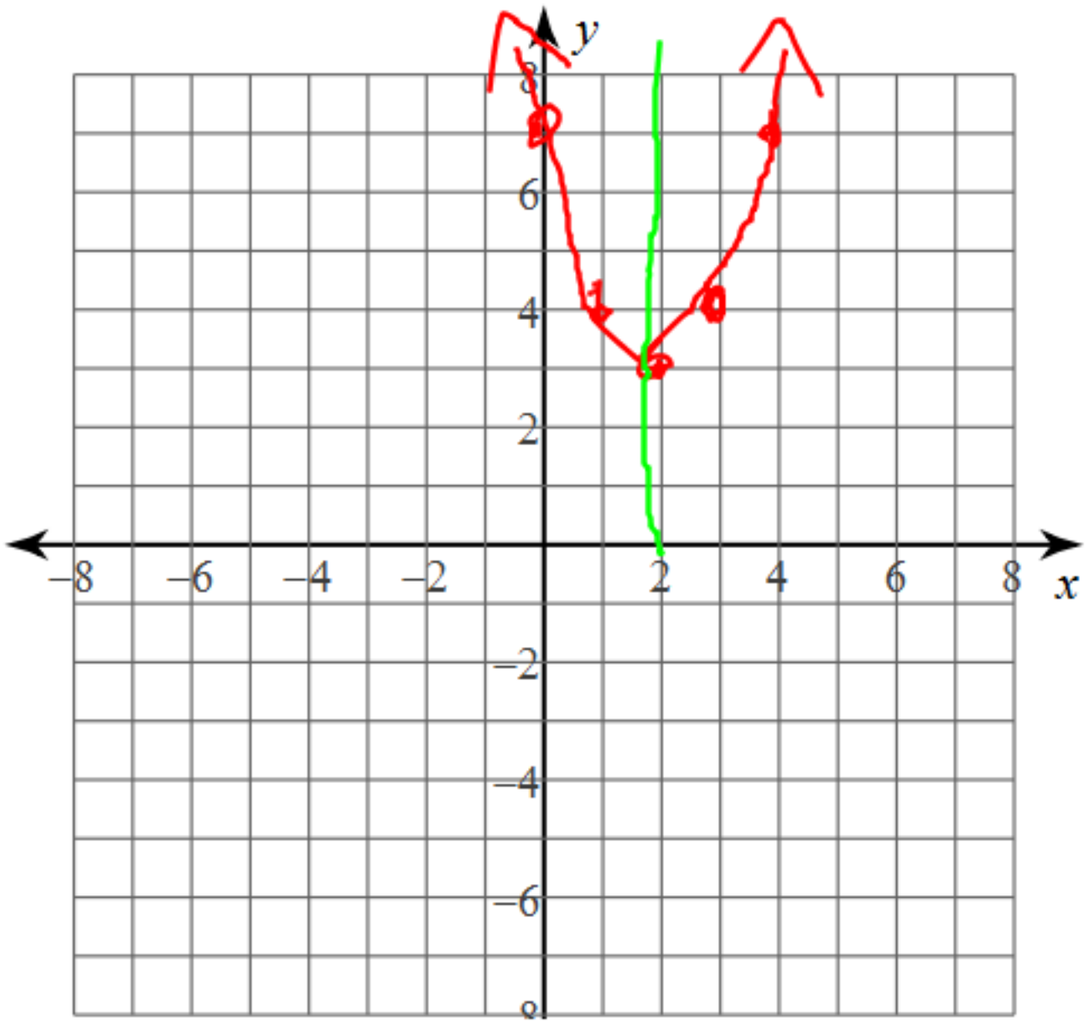
factored form

$a(x-s)(x-t)$

gives x-intercepts

Identify the vertex, axis of symmetry, horizontal shift, vertical shift, x intercepts, max/min, and direction of openning of each. Then sketch the graph.

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



vertex (2, 3)

a.o.s. x = 2

h.s. 2 right

v.s. 3 up

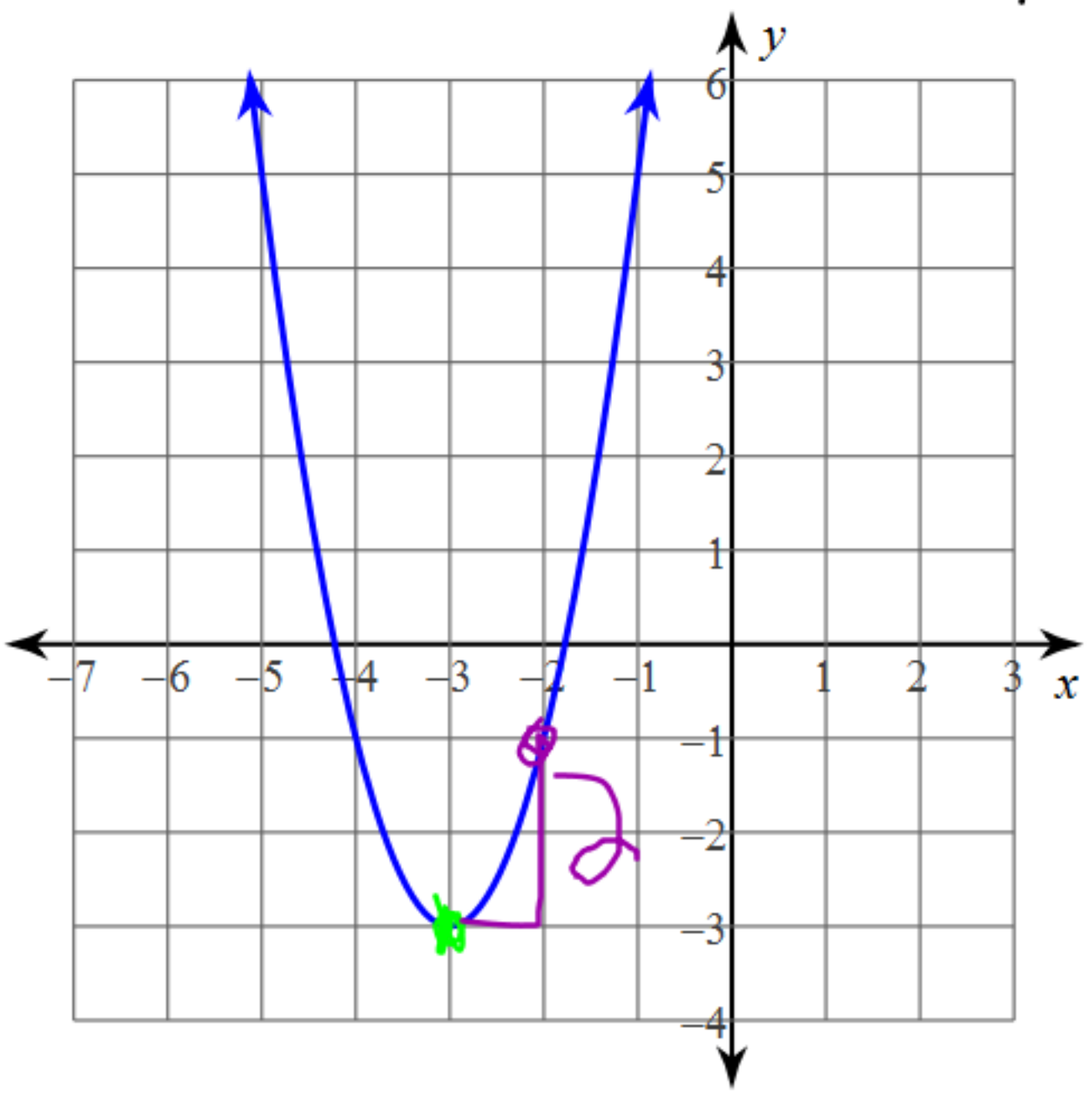
min

up

Use the information provided to write the vertex form equation of each parabola. Make sure to state the 'a' value as well. Hint- use the step pattern to determine how many units the parabola goes up or down.

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

5)



vertex $(-3, -3)$

$h = 3$

$k = -3$

$a = 2$

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