Quadratics Quiz: Write EVERYTHING about the parabola   Name: _Lauren_

Record your answers below; it is optional to show work on a scrap piece of paper. Partial credit will be given.

When given the equation in vertex form

1)   a) Graph $y = -2(x-3)^2 + 2$ (*On your graph, label the axis, scale, 5 points & the AOS*).

   b) Vertex is (_3_ , _2_).   The equation of the Axis of symmetry is x = _3_ .

   c) y-int is (_0_ , _-16_).   x-int(s) are: (_2_ , _0_) and (_4_ , _0_), if applicable.

x	y
1	-6
2	0
3	2
4	0
5	-6

   d) This parabola opens _down_ .   The vertex is a _max_ (max/min) value.

   e) List the transformations:

   vertical shift: +2
   horizontal shift: +2
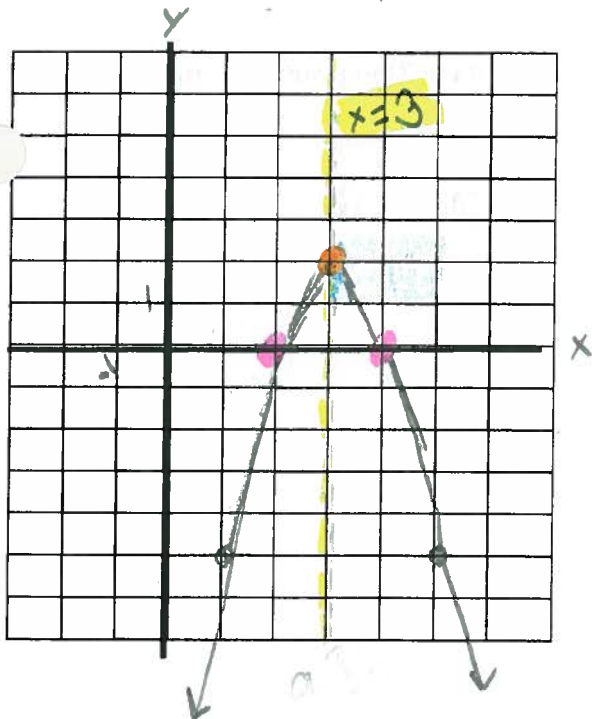
   stretch factor: 2
   FLIP: Yes

   f) Re-write $y = -2(x-3)^2 + 2$ in standard form

   $y = -2(x-3)(x-3) + 2$
   $y = -2(x^2 - 6x + 9) + 2$
   $y = -2x^2 + 12x - 18 + 2$
   $y = -2x^2 + 12x - 16$

   g) Write the three forms of the equation, in their proper form.

   Standard form is: $y = -2x^2 + 12x - 16$

   Vertex form is: $y = -2(x-3)^2 + 2$

   Factored (zeros) form is: $y = -2(x-2)(x-4)$

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When given the equation in factored form

2)   a) Graph $y = \frac{1}{2}(x - 4)(x + 2)$ *(On your graph, label the axis, scale, 5 points & the AOS).*

The zeros of this equation are ___-2 + 4___.

b) Vertex is (_1_ , _-4.5_).   The equation of the Axis of symmetry is x = _1_ .

c) y-int is (_0_ , _-4_).   x-int(s) are: (_-2_ , _0_) and (_4_ , _0_), if applicable.

x	y
-2	0
-1	-2.5
0	-4
1	-4.5
2	-4
3	-2.5
4	0

d) This parabola opens _up_ .   The vertex is a _min_ (max/min) value.

e) List the transformations:

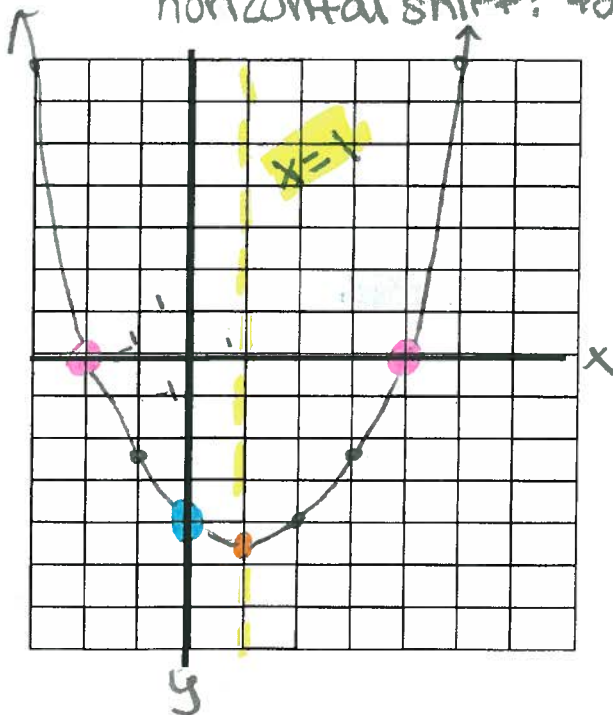vertical shift : -4.5   stretch factor: 0.5

horizontal shift: +2   Flip: No

f) Re-write $y = \frac{1}{2}(x - 4)(x + 2)$ in standard form

$$y = \frac{1}{2}(x^2 + 2x - 4x - 8)$$
$$y = \frac{1}{2}(x^2 - 2x - 8)$$
$$y = \frac{1}{2}x^2 - x - 4$$

g) Write the three forms of the equation, in their proper form.

Standard form is: $y = \frac{1}{2}x^2 - x - 4$

Vertex form is: $y = \frac{1}{2}(x - 1)^2 - 4.5$

Factored (zeros) form is: $y = \frac{1}{2}(x - 4)(x + 2)$

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Record your answers below; it is optional to show work on a scrap piece of paper. Partial credit will be given.

When given the equation in standard form → *COMMON FACTOR* *NO DECOMPOSITION*

3) a) Graph $y = -2x^2 - 4x + 6$ *(On your graph, label the axis, scale, 5 points & the AOS).*

Start by factoring $y = -2x^2 - 4x + 6$ below. The zeros of this equation are __-3 +1__.

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

b) Vertex is (__-1__ , __8__).   The equation of the Axis of symmetry is x = __1__.

c) y-int is (__0__ , __6__).   x-int(s) are: (__-3__ , __0__) and (__1__ , __0__), if applicable.

d) This parabola opens __down__. The vertex is a __max__ (max/min) value.

e) List the transformations:
Vertical shift: +8
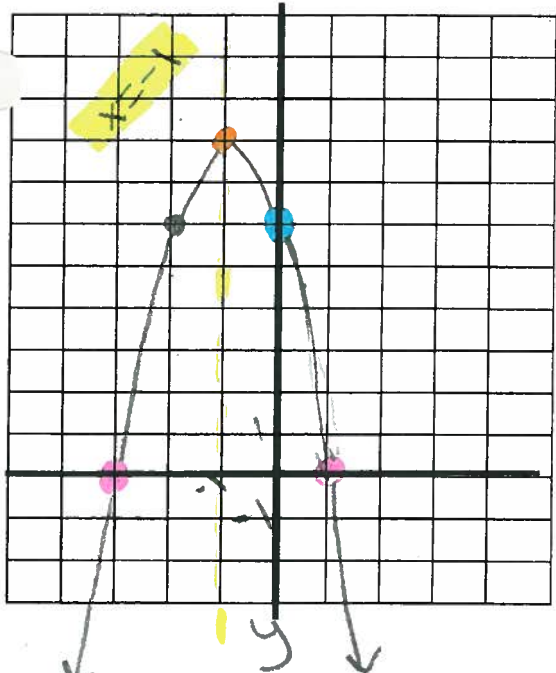horizontal shift: -1

Stretch factor: 2
FLIP: yes

f) Re-write $y = -2x^2 - 4x + 6$ in the other two forms.
$$y = -2(x^2 + 2x - 3)$$
$$y = -2(x - 3)(x + 1)$$
$$y = (x + 1)^2 + 8$$

X	y
-4	-10
-3	0
-2	6
-1	8
0	6
1	0
2	-10
3	-24

g) Write the three forms of the equation, in their proper form.

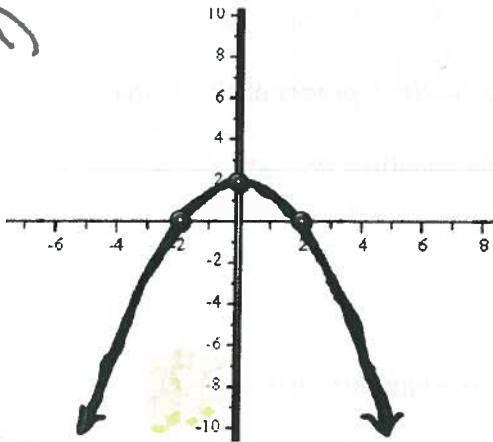Standard form is: $y = -2x^2 - 4x + 6$

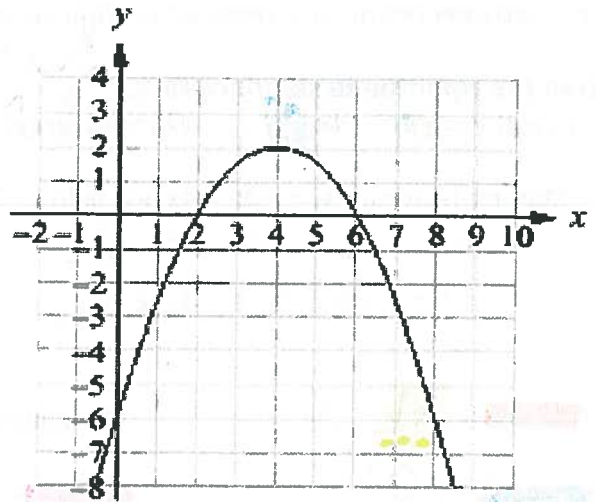Vertex form is: $y = -2(x + 1)^2 + 8$

Factored (zeros) form is: $y = -2(x + 3)(x - 1)$

4) Write the equation for each graph below, starting with either the factored or vertex form of the equation. **Put the final answer in standard form.**

a)

b)

c)

$y = x^2 - 4x - 5$

$(2, -9)$