Quadratics Quiz

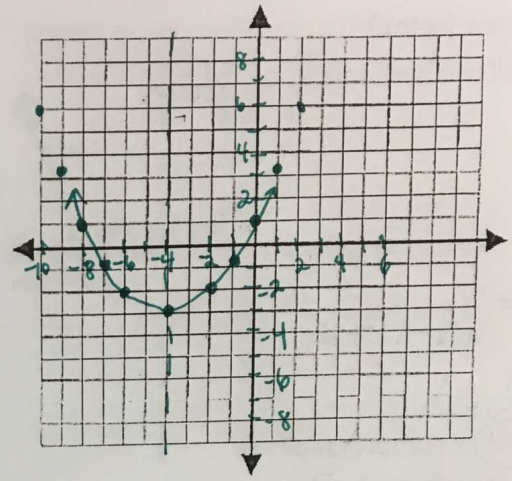
2017

opt 1.

Do not use a calculator. Graph the following, showing the axis of symmetry and at least 5 plotted points. Fill in all requested information.

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

$\frac{-2}{2 \cdot \frac{1}{4}} = \frac{-2}{\frac{1}{2}} = -2 \cdot \frac{2}{1} = -4$



1) axis of symmetry: $x = -4$

1) vertex: $(-4, -3)$

2)

x	y
-4	-3
-3	-2.75
-2	-2
-6	-2
-1	-.75
1	3.25

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

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

$\frac{1}{4}(1)^2 + 2(1) + 1$ $.25 + 2 +$

2) Max or Min = -3. (Circle max or min, then find the value of it.)

2.

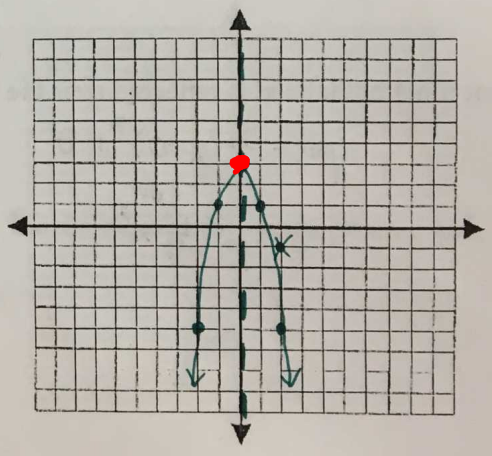
Do not use a calculator. Graph the following, showing the axis of symmetry and at least 5 plotted points. Fill in all requested information.

$y = -2x^2 + 3$

$a = -2 \quad b = 0 \quad c = 3$

$y = -2x^2 + 0x + 3$

$\frac{-b}{2a} = \frac{-0}{2 \cdot -2} = 0$



axis of symmetry: $x = 0$

vertex: $(0, 3)$

x	y
0	3
1	1
2	-5
3	-15

$-2(0)^2 + 3$

$-2(1)^2 + 3$

$-2(2)^2 + 3$

$-2(3)^2 + 3$

Max or Min = 3. (Circle max or min, then find the value of it.)

For #3-5, Explain what the graph will look like.

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

3. $f(x) = -(x+1)^2 + 4$
$a(x-h)^2+k$

Vertex: $(-1, 4)$

Is it stretched or compressed? no, neither?

-By what factor?

What way will the parabola open? down

4. $f(x) = 2x^2 + 5$ $2(x-0)^2+5$

Vertex: $(0, 5)$

Is it stretched or compressed?

-By what factor? 2

What way will the parabola open? ↑

5. $f(x) = \frac{1}{2}(x-2)^2 + 0$
$a(x-h)^2+k$

Vertex: $(2, 0)$

Is it stretched or compressed?

-By what factor? 2

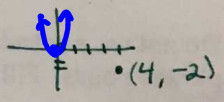
What way will the parabola open? up

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

For #6-7, use the description to write the quadratic function in vertex form.

2pts 6. The parent function $f(x) = x^2$ is compressed by a factor of 3 and translated 4 units right and 2 units down.

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



7. The parent function $f(x) = x^2$ is reflected over the x-axis and stretched by a factor of 4. → a is neg.

$y = -\frac{1}{4}(x-0)^2 + 0$

or

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

• Front: stand. form, graph w/ table