Name: _____ Period: _____ Date: _____

Quadratic Functions Assignment

Identify the axis of symmetry and vertex of the graph of each quadratic function.

1. $f(x) = x^2 - 8x$

2. $f(x) = -x^2 + 4x - 8$

3. $f(x) = x^2 - 8$

4. $f(x) = 4x^2 + 16x - 2$

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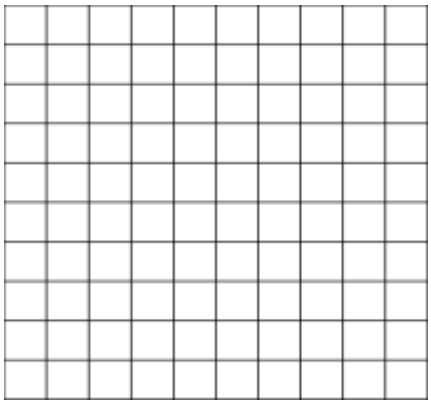
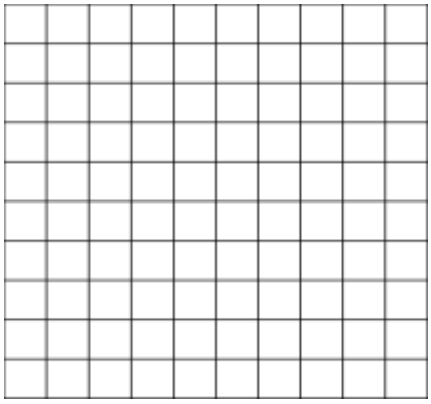
Quadratic Functions Assignment

Graph each function using the vertex and axis of symmetry.

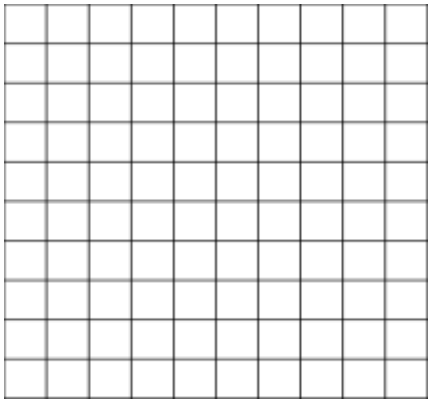
1. $f(x) = x^2 + 4x - 2$



2. $f(x) = \frac{1}{3}x^2 + 4x + 2$



3. $f(x) = -\frac{1}{2}x^2 + 8x - 2$



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Quadratic Functions Assignment

ANSWERS: Identify the axis of symmetry and vertex of the graph of each quadratic function.

1. $f(x) = x^2 - 8x$

   Axis of symmetry:

   $x = -\frac{b}{2a} \rightarrow -\frac{-8}{2(1)} = 4$

   Vertex:

   $f(4) = 4^2 - 8(4) = 16 - 32 = -16 = (4, -16)$

2. $f(x) = -x^2 + 4x - 8$

   Axis of symmetry:

   $x = -\frac{b}{2a} \rightarrow -\frac{4}{2(-1)} = 2$

   Vertex:

   $f(2) = -2^2 + 4(2) - 8 = -4 = (2, -4)$

3. $f(x) = x^2 - 8$

   Axis of symmetry:

   $x = -\frac{b}{2a} \rightarrow -\frac{0}{2(1)} = 0$

   Vertex:

   $f(0) = 0^2 - 8 = -8 = (0, -8)$

4. $f(x) = 4x^2 + 16x - 2$

   Axis of symmetry:

   $x = -\frac{b}{2a} \rightarrow -\frac{16}{2(4)} = -2$

   Vertex:

Name: _____ Period: _____ Date: _____

Quadratic Functions Assignment

$f(-2) = 4(-2)^2 + 16(-2) - 2 = -18 = (-2, -18)$

Graph each function using the vertex and axis of symmetry.

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

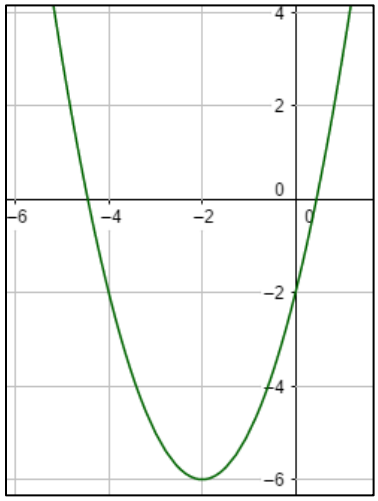
Axis of symmetry:

$x = -\frac{b}{2a} \rightarrow -\frac{4}{2(1)} = -2$

Vertex:

$f(-2) = (-2)^2 + 4(-2) - 2 = -6 = (-2, -6)$

Graph:



2. $f(x) = \frac{1}{3}x^2 + 4x + 2$

Axis of symmetry:

$x = -\frac{b}{2a} \rightarrow -\frac{4}{2\left(\frac{1}{3}\right)} = -6$

Vertex:

$f(-6) = \frac{1}{3}(-6)^2 + 4(-6) + 2 = -10 = (-6, -10)$

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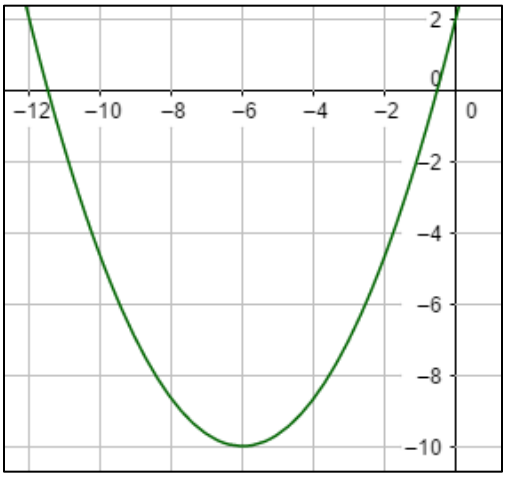
Quadratic Functions Assignment

Graph:



3. $f(x) = -\frac{1}{2}x^2 + 8x - 2$

Axis of symmetry:

$x = -\frac{b}{2a} \rightarrow -\frac{8}{2\left(-\frac{1}{2}\right)} = 8$

Vertex:

$f(8) = -\frac{1}{2}(8)^2 + 8(8) - 2 = 30 = (8, 30)$