

1. GC. Find a quadratic model for the set of values.  
(-1, 10), (2, 4), (3, -6)

$$-2x^2 + 12$$

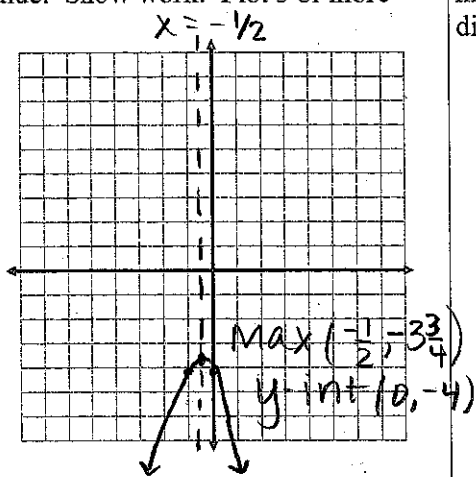
2. GC. Find a quadratic model for the set of values.

x	-4	0	1
F(x)	1	9	16

$$x^2 + 6x + 9$$

3. Graph  $y = -x^2 - x - 4$ .

Label the vertex, y-intercept and axis of symmetry. Find the maximum or minimum value. Show work. Plot 3 or more distinct points.



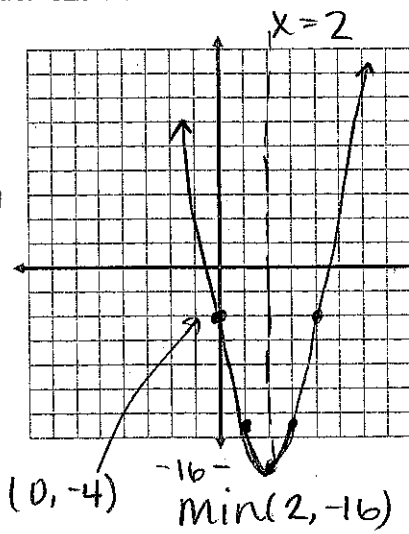
$$\frac{1}{2(-1)} = -\frac{1}{2}$$

$$y = -\frac{1}{4} + \frac{1}{2} - 4$$

$$y = -3\frac{3}{4}$$

4. Graph  $y = 3x^2 - 12x - 4$ .

Label the vertex, y-intercept and axis of symmetry. Find the maximum or minimum value. Show work. Plot 3 or more distinct points.



$$x = \frac{12}{2(3)} = 2$$

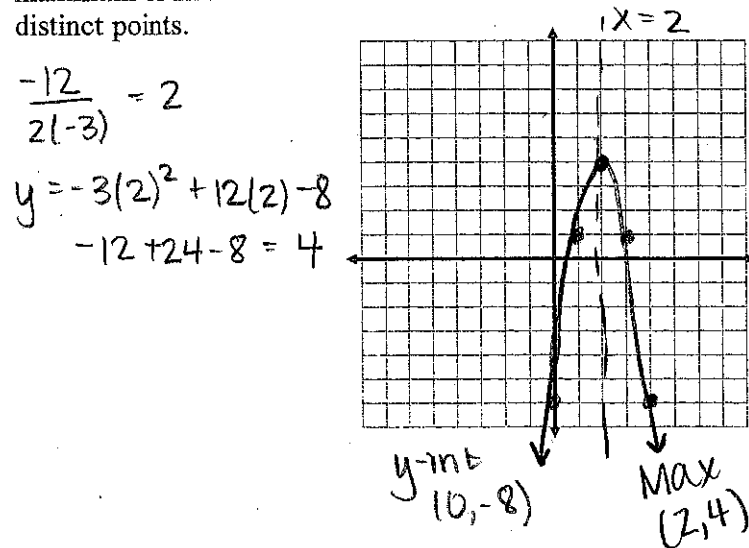
$$y = 3(2)^2 - 12(2) - 4$$

$$12 - 24 - 4$$

$$y = -16$$

5. Graph  $y = -3x^2 + 12x - 8$ .

Label the vertex, y-intercept and axis of symmetry. Find the maximum or minimum value. Show work. Plot 3 or more distinct points.



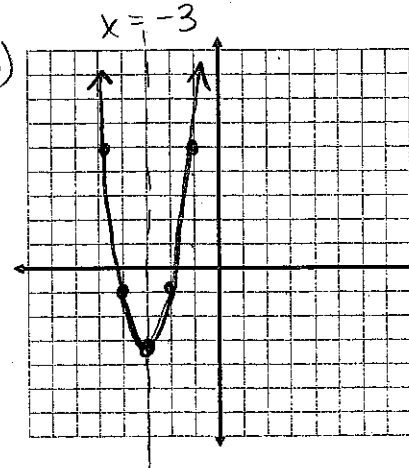
$$\frac{-12}{2(-3)} = 2$$

$$y = -3(2)^2 + 12(2) - 8$$

$$-12 + 24 - 8 = 4$$

6. Graph  $y = 2(x+3)^2 - 3$ .

Label the vertex, y-intercept and axis of symmetry. Find the maximum or minimum value. Show work. Plot 3 or more distinct points.



vertex  $(-3, -3)$   
y-int  $(0, 15)$

7. Write the function  $y = -x^2 + 4x + 4$  in vertex form.

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

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

$$-4 + 8 + 4 = 8$$

$$y = -(x-2)^2 + 8$$

8. Write the function  $y = x^2 + 8x + 3$  in vertex form.

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

$$y = (-4)^2 + 8(-4) + 3$$

$$y = 16 - 32 + 3$$

$$y = -13$$

$$y = (x+4)^2 - 13$$

9. Identify the vertex and the y-intercept.  $y = -3(x-2)^2 + 4$

$$v = (2, 4)$$

$$y\text{-int} = (0, -8)$$

10. Factor completely.  $24x^2 + 8x - 10$

$$2(12x^2 + 4x - 5)$$

$$\begin{array}{r} -60 \\ \times 10 \\ \hline 6 \\ \times 4 \\ \hline -60 \\ 100 \\ \hline -60 \\ 40 \\ \hline 10 \end{array}$$

	$2x$	$-1$
$6x$	$12x^2$	$-6x$
$5$	$10x$	$-5$

$$2(2x-1)(6x+5)$$

11. Factor completely.  $16x^4 - 81$

$$(4x^2 - 9)(4x^2 + 9)$$

$$(2x-3)(2x+3)(4x^2+9)$$

12. Factor completely.  $9x^2 + 24x + 16$

$$(3x+4)^2$$