

Show All Work

- 1) Convert this equation from vertex form to standard form. (2 points)

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

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

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

$$y = -3x^2 + 12x - 12 - 4$$

$$y = -3x^2 + 12x - 16$$

- 2) Find the vertex for the equation:
(4 points)

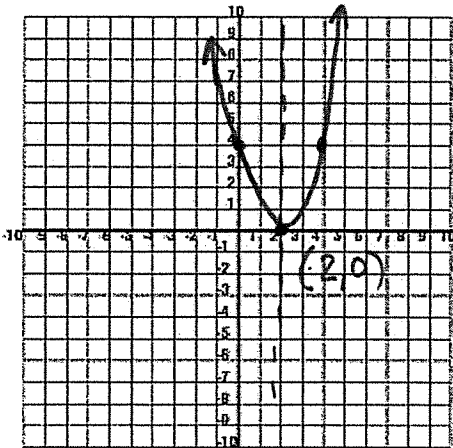
$$y = -2x^2 + 4x - 5 \quad a = -2 \quad b = 4 \quad c = -5$$

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

$$(1, -3) \quad -2(1)^2 + 4(1) - 5 = -3$$

- 3) Use your graphing calculator to solve this equation by graphing. Clearly indicate the solutions and the vertex by marking them with coordinates and points. (4 points)

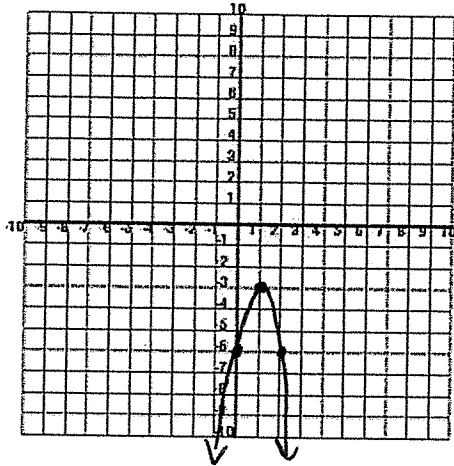
$$y = x^2 - 4x + 4$$



$x = 2$
one solution

- 4) Use your graphing calculator to solve this equation by graphing. Clearly indicate the solutions and the vertex by marking them with coordinates and points. (4 points)

$$y = -4x^2 + 8x - 6$$



No Solution

- 5) Solve using square roots. $x^2 - 25 = 0$
(4 points)

$$x^2 = 25$$

$$x = \sqrt{25}$$

$$x = 5$$

$$x = -5$$

Two Solutions

- 6) Solve using square roots. $-4x^2 = 228$
(4 points)

$$\frac{-4x^2}{-4} = \frac{228}{-4}$$

$$x^2 = -57$$

$$x = \sqrt{-57}$$

No Solution

- 7) Solve using square roots. (4 points)

$$\begin{array}{r} 5x^2 - 130 = 250 \\ + 130 \quad + 130 \\ \hline 5x^2 = 380 \end{array}$$

$$\frac{5x^2}{5} = \frac{380}{5}$$

Two Solutions

$$x^2 = 76$$

$$x = 8.72$$

$$x = \sqrt{76}$$

$$x = -8.72$$