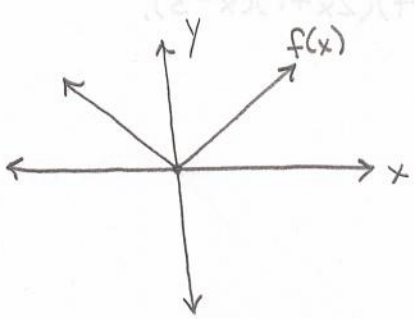
NAME: Solution

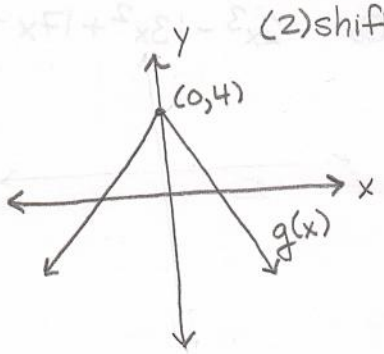
MAC 1147 Section 3079
Quiz Four

Please show all of your work in a NEAT and ORGANIZED fashion.

1. (3 points) Sketch the graph of $f(x) = |x|$. Use the graph of the parent function $f(x)$ to sketch the graph of $g(x) = -|x| + 4$.

(1) reflect in the x-axis,
(2) shift up 4 units





2. (3 points) Identify the vertex and axis of symmetry of the quadratic function $f(x) = -2x^2 + 8x - 3$.

$= -2(x^2 - 4x) - 3$
$= -2(x^2 - 4x + 4 - 4) - 3$
$= -2(x-2)^2 + 8 - 3$
$= -2(x-2)^2 + 5$

Vertex = $(h,k) = (2,5)$

Axis of symmetry: $x = 2$

3. (a) (2 points) Perform the following division. You may use long division or synthetic division.

$$\frac{2x^3 - 13x^2 + 17x + 12}{x - 4}$$

$$\begin{array}{r} 2x^2 - 5x - 3 \\ x-4 \overline{)\,2x^3 - 13x^2 + 17x + 12} \\ 2x^3 - 8x^2 \\ \hline -5x^2 + 17x \\ -5x^2 + 20x \\ \hline -3x + 12 \\ -3x + 12 \\ \hline 0 \end{array}$$

OR

$$\begin{array}{r|rrrr} 4 & 2 & -13 & 17 & 12 \\ & & 8 & -20 & -12 \\ \hline & 2 & -5 & -3 & 0 \end{array}$$

$2x^2 - 5x - 3$