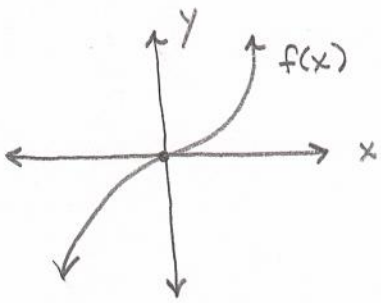
NAME: Solution

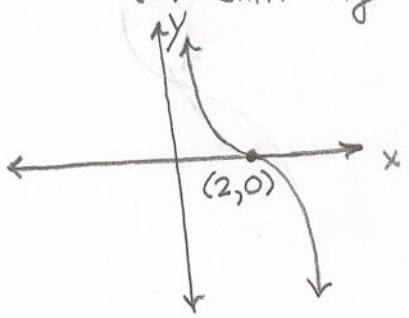
MAC 1147 Section 3089
Quiz Four

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

1. (3 points) Sketch the graph of $f(x) = x^3$. Use the graph of the parent function $f(x)$ to sketch the graph of $g(x) = -(x-2)^3$.

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





2. (3 points) Identify the vertex and axis of symmetry of the quadratic function $f(x) = 2x^2 + 12x + 5$.

$= 2(x^2+6x)+5$

$= 2(x^2+6x+9-9)+5$

$= 2(x+3)^2-18+5$

$= 2(x+3)^2-13$

Vertex $= (h,k) = (-3,-13)$

Axis of symmetry: $x = -3$

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

$$\frac{x^3+8x^2-15x-54}{x+2}$$

$$\begin{array}{r} x^2+6x-27 \\ x+2 \overline{)\, x^3+8x^2-15x-54} \\ \underline{x^3+2x^2} \\ 6x^2-15x \\ \underline{6x^2+12x} \\ -27x-54 \\ \underline{-27x-54} \\ 0 \end{array}$$

OR

$$\begin{array}{r|rrrr} -2 & 1 & 8 & -15 & -54 \\ & & -2 & -12 & 54 \\ \hline & 1 & 6 & -27 & 0 \end{array}$$

$x^2+6x-27$