

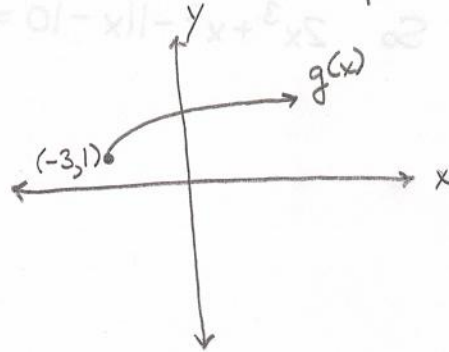
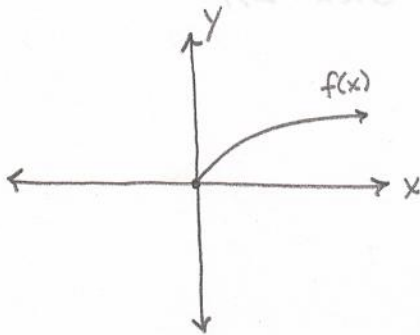
NAME: Solution

MAC 1147 Section 3077

Quiz Four

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

1. (3 points) Sketch the graph of $f(x) = \sqrt{x}$. Use the graph of the parent function $f(x)$ to sketch the graph of $g(x) = 1 + \sqrt{x+3}$. (1) shift left 3 units, (2) shift up 1 unit



2. (3 points) Identify the vertex and axis of symmetry of the quadratic function $f(x) = 3x^2 - 6x + 11$.

$$\begin{aligned} &= 3(x^2 - 2x) + 11 \\ &= 3(x^2 - 2x + 1 - 1) + 11 \\ &= 3(x-1)^2 - 3 + 11 \\ &= 3(x-1)^2 + 8 \end{aligned}$$

Vertex = $(h, k) = (1, 8)$

Axis of symmetry: $x = 1$

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

$$\frac{2x^3 + x^2 - 11x - 10}{x + 1}$$

$$\begin{array}{r} 2x^2 - x - 10 \\ x+1 \overline{) 2x^3 + x^2 - 11x - 10} \\ \underline{2x^3 + 2x^2} \\ -x^2 - 11x \\ \underline{-x^2 - x} \\ -10x - 10 \\ \underline{-10x - 10} \\ 0 \end{array}$$

OR

$$\begin{array}{r|rrrr} -1 & 2 & 1 & -11 & -10 \\ & & -2 & 1 & 10 \\ \hline & 2 & -1 & -10 & 0 \\ & \searrow & & & \\ & & 2x^2 - x - 10 & & \end{array}$$