

## Math 111 Quiz #3 Solutions

- (a)  $g(2) = \boxed{0}$   
(b)  $g(g(2)) = g(0) = \boxed{1}$   
(c)  $g^{-1}(2) = \boxed{1}$  since  $g(1) = 2$

2.  $f(h(x)) = \boxed{\sqrt{2x^2 + 6x} - 1}$

3. To find the inverse, solve for  $x$  in the equation  $y = \sqrt{x} - 1$ :  $y + 1 = \sqrt{x}$   
 $\Rightarrow (y + 1)^2 = x$

$$\boxed{\text{So, } x = f^{-1}(y) = (y + 1)^2.}$$

4. We are solving the equation  $2x^2 + 6x = 36 \Rightarrow 2x^2 + 6x - 36 = 0$ .

You can use the quadratic formula to solve this or you can factor the left side the equation.

$$2(x^2 + 3x - 18) = 0$$

$$2(x + 6)(x - 3) = 0$$

$$\boxed{\Rightarrow x = -6, x = 3}$$