Unit 0 HW #3

1. Consider the functions $f(x) = 3x^2 - 5$ and $g(x) = \sqrt{x-5} + 2$. *Help*
   a. Find f(5) .
   b. Find g(5).
   c. Describe the domain of f(x).
   d. Describe the domain of g(x).
   e. Why is the domain of one of these functions more restrictive than the other?

2. Nick and Shelly were arguing over a math problem. Nick was trying to explain to Shelly that she had made a mistake in finding the *x*-intercepts of the function $y = x^2 - 10x + 21$. *"No way!"* Shelly exclaimed. *"I know how to find x-intercepts! You make the y equal to zero and solve for x. I know I did this right!"* Here is Shelly's work: *Help*

   Step 1: $x^2 - 10x + 21 = 0$, so $(x + 7)(x + 3) = 0$.

   Step 2: Therefore, $x + 7 = 0$ or $x + 3 = 0$.

   Step 3: So $x = -7$ or $x = -3$.

   Nick tried to explain to Shelly that she had done something wrong. What is Shelly's error? Justify and explain your answer completely.

3. When using some graphing calculators, equations must be solved for *y*; that is, they must be written in *y*-form. Rewrite each equation below so that it is solved for *y*. *Help*
   a. $x = 3y + 6$
   b. $x = y^2$
   c. $x = (y-5)^2$

4. Solve each of the following equations. Be sure to check your solutions. *Help*
   a. $4(x - 1) - 2(3x + 5) = -3x - 1$
   b. $3x - 5 = 2.5x + 3 - (x - 4)$