College Algebra
Workshop 3

1. Consider the following function:

$$f(x) = 2x^3 - x^2 - 5x - 2$$

(1) Can you write the key strokes to store this function?

(2) Can you use the table to find the root inputs of the function? [Hint: There are three root inputs of this function. You may have to change the Table Range to find all of the root inputs.]

(3) What do you observe about the y-values around the root inputs?

2. A projectile is fired from a cliff 500 feet above the water at an inclination of 45° to the horizontal, with a muzzle velocity of 400 feet per second. In physics, it is established that the height h of the projectile above the water is given by

$$h(x) = \frac{-32x^2}{(400)^2} + x + 500$$

where x is the horizontal distance of the projectile from the base of the cliff in feet.

(1) What is the abstract domain of this function?

(2) Use the TI-92 calculator (store the function and then create the table) to help answer the following questions.

(a) How far from the base of the cliff is the projectile when its height is 1000 feet?

(b) Find the maximum height of the projectile.

(c) Find the root inputs of the function.

(d) How far from the base of the cliff will the projectile strike the water?

(e) Are the questions (c) and (d) related in any way? If yes, explain.

(f) Find the application domain of this function.