Name: _____

Math 111 Worksheet #1
September 28, 2007

1. You decide to produce and sell the next big office supply item, gold-plated mechanical pencils. Your costs are as follows: Fixed Costs = \$80,000
   Variable Costs: \$800 each pencil

   Selling price for each pencil is \$4,000.

   (a) Find functions for $TC(q)$ = total cost of producing q pencils and $TR(q)$ = total revenue for producing q pencils.

   (b) Find a function for $TP(q)$ = total profit for selling q items.

   (c) How many pencils would you need to sell to break even? (Revenue=Cost or Profit=0)

   (d) How many pencils do you have to sell to make a profit of \$480,000?

2. The following table gives the average height of females at the ages of 5, 7, and 9.

Age (years)	5	7	9
Height (inches)	42	47.5	53

   (a) What is the average rate of growth between 5 and 7 years? Between 7 and 9 years?

   (b) Assuming that the average height h is a linear function of age t, write a formula for h in terms of t.

   (c) Graph the average height as a function of t.

   (d) According to your formula, what is the average height of an 25 year old?

   (e) Do you think the formula from part (b) reasonably models height?