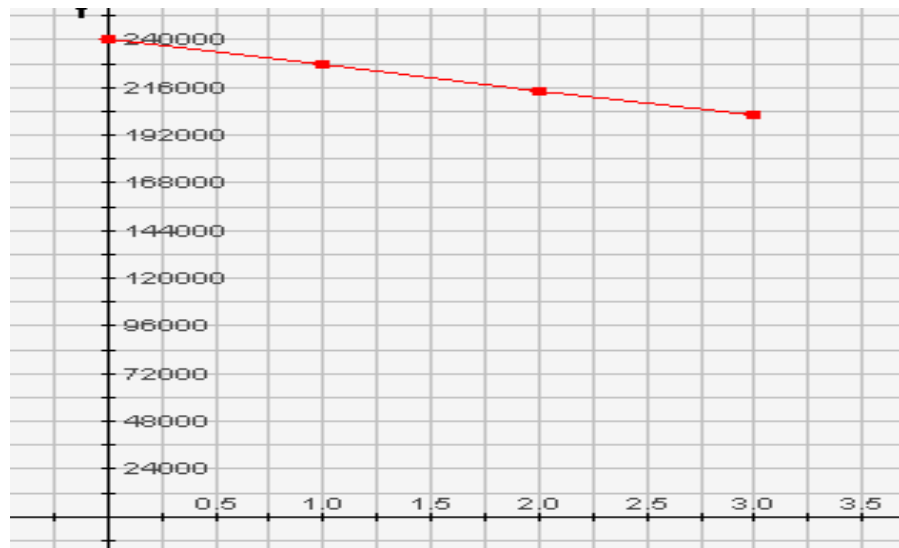Name: _____

MATH133 Unit 1 Individual Project 2 A

1)   The following graph shows the depreciation for the corporate airplane from 2006
       to 2009. The plane was purchased new in 2006; therefore, $x = 0$ represents the
       year 2006.

       X – axis (horizontal) = years starting from 0 = 2006 and increasing by 0.5 years
       Y – axis (vertical) = price in $ amounts from 24,000 to 240,000

a)   List the coordinates of two points on the graph in (x, y) form. The numbers on
       the horizontal axis are 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, and 3.5.

       (____, ____),(____, ____)

b)   Find the slope (rate of depreciation) of this line:

       Answer:

       Show your work here:

c)   Find the linear equation of this line in slope-intercept form.

       Answer:

       Show or explain your work here:

d)   If the rate of depreciation continues at the present rate, what will be the plane's
       value in the year 2017? Show how to use the linear equation from part c) to
       obtain your answer.

e) If the trend continued, in how many years would the plane's value be $48000? Show how to use the linear equation from part c) to obtain your answer.

2) Suppose that the width of a rectangle is 5 inches shorter than the length and that the perimeter of the rectangle is 50 inches. The formula for the perimeter of a rectangle is P=2L+2W.

a) Set up an equation for the perimeter involving only L, the length of the rectangle.

b) Solve this linear equation algebraically to find the length of the rectangle. Find the width as well.

c) Using the **same width** as your answer from part b), find a **new perimeter** if the **new length** is 4 less than three times the width.

3)   A marketing group developing online ad space is offering two payment options:

Option 1: $210 set up fee plus $10/inch of the ad

Option 2: No set up fee but $25/inch of the ad

Let x = inches of the proposed ad, for example, x = 2 for a column ad that is 2 inches long.

   a)   Write a mathematical model representing the total ad cost, C, in terms of x for the following:

   Option 1: $C=$_____

   Option 2: $C=$_____

   b)   How many inches of ad space would need to be purchased for option 1 to be less than option 2? Set up an inequality and show your work algebraically using the information in part a).

   Answer:

   Show your work here:

   c)   Summarize your findings in a brief sentence.

   Answer:

4)   Graph the equations on separate graphs by completing the tables and plotting the points. You may use Excel or another web-based graphing utility.

   a) Complete the table using the given values of x and the equation y = -2x + 7.
   Show your work.

x	y
-1	
0	
2	
4	

b) Graph the equation here by plotting the points from your table. For help on creating your graph in Excel and inserting graphs into a Word Doc please see the tutorial in the Assignment List.

c) Complete the table using the given values of x and the equation 3x – y = 8. Show your work.

x	y
0	
1	
2	
3	
4	

d) Graph the equation here by plotting the points from your table. For help on creating your graph in Excel and inserting graphs into a Word Doc please see the tutorial in the Assignment List.