

**Math 162****Quiz 3**

Show all work in a neat and organized fashion. Clearly indicate your answers.  
10 points possible.

Label all numeric answers. With models, give a concise explanation of the variables.

**Example:** Suppose a problem asks for a model, and suppose this is the answer:

$$Tax = 2538.90 + 540.37t \text{ dollars, where } t \text{ is the number of years since 1989.}$$

To receive full credit, this answer must include **all** of the following:

- (1) the correct model (i.e.,  $Tax = 2538.90 + 540.37t$ ),
- (2) the correct label for the output (i.e., “dollars”), and
- (3) the correct explanation of the input variable (i.e., “where  $t$  is the number of years since 1989”).

**Example:** Here is another correct way to write the same answer.

$$D = 2538.90 + 540.37x, \text{ where } D = \text{dollars of tax, and } x = \text{number of years since 1989.}$$

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1. (5 pts.) The table below shows the enrollment for a university in the southeast from 1965 through 1969.

Year	Students
1965	5024
1966	5540
1967	6057
1968	6525
1969	7028

- (a) Find a linear model for the data. Do not round.
  
  
  
  
  
  
  
  
  
  
- (b) Use the model to estimate the enrollment in 1970. Round the answer appropriately.
  
  
  
  
  
  
  
  
  
  
- (c) What is the rate of change of the model you found? (Include correct units.)

2. (5 pts.) The table below shows the enrollment for a university in the southeast from 1965 through 1969.

Year	Population (thousands)
1985	677
1986	669
1987	661
1988	655
1989	646
1990	639
1991	633
1992	634
1993	635

(a) Observe a scatter plot of the data. Write down the values of Xmin, Xmax, Ymin, and Ymax that you used (press Window to see these values).

(b) From the scatter plot, what year is the dividing point that should be used to create a piecewise continuous function?

(c) Divide the data in the year you determined in part (b). Include the dividing point in both data sets. Fit linear models to each set of data, and write the function in correct piecewise continuous function notation. Round the numbers to four decimal places.