

Math 1414
College Algebra
Lab Exercise # 4
Dr. Word

Name: _____

Date: _____

Section: _____

Semester: _____

Grade: _____

Attach computer printouts to this sheet and submit your assignment to your instructor or the lab supervisor by Friday of the week assigned.

The source of the following data was <http://www.fhwa.dot.gov/ohim>

- 4a. The Federal Department of Transportation (FDOT) gives the number of persons fatally injured in motor vehicle crashes from 1980 through 1994. Label two lists YEAR and NUMB and enter 1980, 1982, 1984, 1986, 1988, 1990, 1992, and 1994 for the years and 51,091; 43,945; 44,377; 46,087; 47,087; 44,599; 39,230; and 40,718; respectively for the numbers. Use the TI-83 to draw a scatter plot of YEARS vs. NUMB and use the regression feature to determine the function that models the data.
- 4b. Graph the function found in 4a. and state the degree. Use the leading coefficient test and other information in the text to determine end behavior, number of turns, maximum (between 1982 and 1990), and minimum values of the function and compare your results to the graph.
- 4c. Use Descartes' Rule to determine the possible number of positive and negative zeros. Compare the results to the number and signs of the x-intercepts on the graph if they exist.
- 4d. Use the CALC feature of the calculator to determine the values of the zeros if they exist. Compare your results to the results of the Rational Zero Theorem and explain your answers.
- 4e. Use the TI-83 calculator to predict the number of fatal injuries in 1997 according to the model and research the actual figures from FDOT for 1997 was about 43,000. Compare the numbers. What factors account for any differences?

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*****If in doubt, Print it out!*****

This lab will exercise many of the same tasks of Lab #2. You will be using more regression equations and you will be entering more data into the statistics editor.

4a) Enter the data just as you did in Lab #2. Set up a stat plot, adjust your window to fit the data, and graph the scatter plot. Imagine a line drawn through the points graphed. This will help you determine the regression equation. Try a cubic and a quartic. Which fits the points better?

4b) No guidance necessary. Use your textbook.

4c) No guidance necessary. Use your textbook.

4d) To find zeroes of a function: Touch [2^{nd}] [TRACE] (CALC), 2:zero. The calculator wants to know the left and right bounds. Refer to Lab#3 on bounds.

4e) Be sure your windows accommodates the year 1997. To find a future value, touch [2^{nd}] [TRACE] (CALC), 1:value, and then type the year.