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| **Problem 1 – Exponential Growth** |
| When Connor was born, his parents put $1000 into an account to give him as a present on his 21st birthday. However, his parents forgot the yearly interest rate on the account.The data (years and investment worth) is stored in **L1** and **L2** of your graphing calculator. |  |
| Create a scatter plot of the data by pressing y o [stat plot] Í matching the screen to the right.To view the scatter plot, press q and select **9:ZoomStat**.It may be necessary to modify your viewing window if you wish to use the GridLine feature. Press p and change the value of **Yscl:** to 100. |  |
| Using your knowledge of compound interest, study the data and the graph to determine a function for the growth of Connor’s money.Enter your equation in **Y1** and press s to check your result.**Note:** The regressions can be found by pressing … and scrolling over to the **CALC** menu.**1.** The equation for the data is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **2.** What variable should be on the horizontal axis? Vertical axis?**3.** How can you determine the interest rate for this growth? |
| **Problem 2 – Logarithmic Growth** |
| Scientists are testing the amount of greenhouse gases present at a research site near the north pole to determine the effect on polar ice melting. The results for a given area around the research site are stored in **L3** and **L4** of your graphing calculator. |  |
| Create a scatter plot of the data by pressing y o [stat plot], selecting **Plot 1** and pressing Í. Match the screen to the right.To change the **Xlist:** and **Ylist:**, press y Â [**L3**] and y ¶[**L4**] respectively.To view the scatter plot, press q and select **9:ZoomStat**.It may be necessary to modify your viewing window if you wish to use the GridLine feature. Press p and change the value of **Xscl:** to 50 and **Yscl:** to 0.25. |  |
| Determine a natural log equation to model the data by pressing …, scrolling over to **CALC**, and selecting **9:LnReg**. |  |
| To finish the regression, enter **L3**, **L4**, and **Y1** as shown on the screen to the right.To enter **Y1** on the Store **RegEQ:** line, press ½, arrow to the right to **Y-VARS**, choose **1: FUNCTION**, and choose **1: Y1**.Select **CALCULATE** and press Í.**4.** The equation for the data is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Press s to view the scatter plot and regression equation both plotted. |  |
| **5.** What variable should be on the horizontal axis? Vertical axis? |
| **Problem 3 – Exponential Decay** |
| Due to an environmental chemical spill, a farmer is losing the amount of land on which he can plant crops. The data in **L5** and **L6** of your graphing calculator show the year and amount of useable land for each year. Determine an equation that models the amount of land the farmer can use each year.After creating a scatter plot of the data, use your graphing calculator to perform an exponential regression that models the data and plot the function by pressing s. Select appropriate **Xscl** and **Yscl** values.**6.** The equation for the data is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**7.** What is the number of acres the farmer started with in year zero?**8.** By what percent does the amount of acres available decrease every year? |