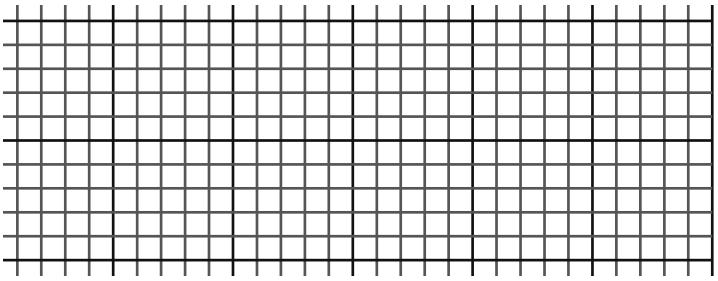
Lab #6 This Old Mine *Franz Helfenstein* **Name**

An old mine contaminated Clear Lake for years. This table represents some water quality readings for Clear Lake. The data collection began shortly before This Old Mine was shut down. When the mine shut down, clean up began.

Month	Date	ppb	Month	Date	ppb
5	5/5/93	854	17	5/5/94	827
7	7/5/93	853	19	7/5/94	765
9	9/5/93	855	21	9/5/94	716
11	11/5/93	852	23	11/5/94	661
13	1/5/94	855	25	1/5/95	615
15	3/5/94	853	27	3/5/95	582

1) Which variable is the Independent Variable: _____ Dependent Variable: _____

2) Label the axes and sketch the data plot.



3) Determine when the mine closed down. Explain how you arrived at your conclusion.

4) Break the data into two sections. One for prior to closing down and one after shutting down. Enter the second set in L_1, L_2. The shut-down date should be included. Run Linear Regression on the data and write the equation here.

ppb (t) =

5) Using the regression line, what will be the contamination on 10/5/98? Include your t-value in your answer.

ppb (_____) =

6) Determine when your line predicts water quality to reach 10 ppb. Give both t-value and associated date.

7) The cost of cleaning up contamination should get increasingly expensive as the percentage of remaining contaminant approaches 0%. Just imagine what it would take to get 100% of the cinders removed from alongside our roads. One function that models such behavior is $\text{Cost}(r) = \frac{A}{1 - r}$ Where 'r' is the percent cleaned up and 'A' is the overhead cost.

Suppose A = $100,000. Give the domain for this function. D: _____

Give the y-intercept: y-int _____

What does that number represent?

8) How much will it cost to clean up 50% of the contamination?

9) What percent of the contamination can be cleaned up for $1,000,000

10) What is the average of the contamination levels prior to closing down? _____

Use that average and the percent found above to determine the contamination level the cleanup process can reach for $1,000,000.