Name:

Period:

Graph It, Deduce It, And Extrapolate It!

Using the TAILS method and some sample data, you will practice creating a proper graph, and then deduce the equation for the best-fit line.

Use the following table for the data for your graph, taken from a study of student Facebook use:

|  |  |
| --- | --- |
| % of Students Using Facebook | Year of Study |
| 3 | 1 |
| 9 | 3 |
| 17 | 5 |
| 25 | 7 |
| 43 | 9 |
| 65 | 11 |

Before plotting data on your graph, you need to figure out which variable will be on which axis. In other words, determine which is the independent variable (x-axis) and which is the dependent variable (y-axis).

1) Which variable is the independent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) Why is this one the independent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) Which variable is the dependent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4) Why is this one the dependent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Now that the variables are determined, start adding your **T**itle and **L**abel your **A**xes, including units!

5) What is your **S**cale for each axis?

x-axis: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

y-axis: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) What are your **I**ntervals for your graph?

x-axis: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

y-axis: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Now add numbers to each axis based on the intervals you determined.

Next, plot the data. Check that you have a complete proper graph using TAILS. Make a line of best-fit using a ruler that is straight and comes as close as possible to each data point (Don’t connect the dots!!).

The last step is to deduce the equation of the best-fit line using y= mx + b form. Remember that **m** is the slope, and **b** is the y-intercept, or where the best-fit line crosses the y-axis.

7) What is the slope of the best-fit line? This can be determined by taking any 2 points from the best-fit line, and determining the rise/run. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8) What is the y-intercept? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9) What is the equation for the best-fit line? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Using the equation or graph: Now that you have an equation for the best-fit line, you can deduce answers! You could determine what percentage of students are likely to use Facebook in a given year, or what year it likely is if a certain percentage of students use Facebook..

10) Using your deduced equation or your graph, about what percentage of students are expected to use Facebook in the year 8 of the study?

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11) If 97% of students are using Facebook, what year of the study would we expect it to be?

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