Graphing Worksheet

Use these steps for each of the lab situations:

I) Determine which variable is independent, and which is dependent.
II) Fill in the table with the correct data points.
III) Plot the data in the first graph, choosing appropriate scales for the data.
IV) Label (with units) and title your graph.
V) If the data is linear, draw the best fits line, and find the equation of the line.
VI) If the data is not linear, determine the relationship between the variables and manipulate them to make the data linear. (i.e. square the independent variable, etc).
VII) Plot these new numbers in the second graph.
VIII) Again, find the best fits line and the equation.
IX) Use your equation to correctly model the relationship between the two variables, and answer the questions at the end of each lab scenario.

Good Luck!

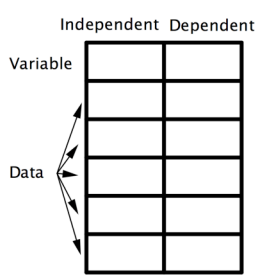
Lab #1 – In this lab you measured the velocity of a car (in meters per second) at several time intervals (seconds). At the beginning of the lab (t = 0.0 s), the car had a velocity of 5.0 m/s. At t = 2.0 s, the car was moving at 10.1 m/s. At t = 4.0 s, the car was moving at 14.9 m/s. At t = 6.0 s, the car was moving at 20.2 m/s. Finally, at t = 10.0 s, the car was moving at 30.0 m/s. Follow all of the steps above. Predict the car's velocity at 8.0 seconds, and at 20.0 seconds.

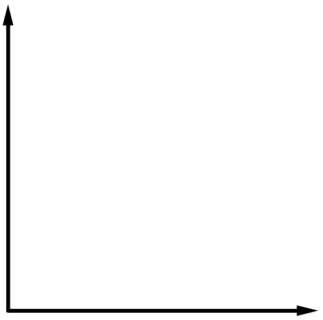
Lab #2 – In this lab you measured the kinetic energy of a car (in Joules) at several velocities (m/s). At the beginning of the lab the car was at rest (v = 0 m/s) and had no kinetic energy. At v = 1.0 m/s, the car had KE = 5.1 J. At v = 2.0 m/s, the car had KE = 19.6 J. At v = 3.0 m/s, the car had KE = 45.1 J. Finally, at v = 4.0 m/s, the car had KE = 79.9 J. Follow all of the steps above. Predict the car's KE at 2.5 m/s, and at 8 m/s.

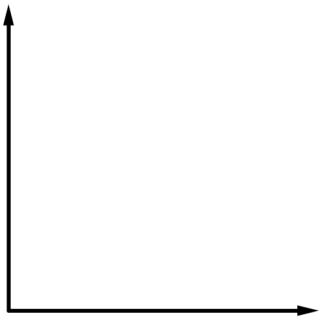
Lab #3 – In this lab you measured the velocity (m/s) of a roller coaster at various distances (m) from the top of the first hill. At the top of the hill (d = 0 m), the coaster was at rest (v = 0 m/s). At d = 5.0 m, the coaster had a velocity of 4.5 m/s. At d = 10.0 m, the coaster had a velocity of 6.3 m/s. At d = 15.0 m, the coaster had a velocity of 7.7 m/s. Finally, at d = 20.0 m, the coaster had a velocity of 9.0 m/s. Follow all of the steps above. Predict the coaster's velocity at 12.0 m, and at 25.0 m.

Lab #4 – In this lab you measured the current (Amps) in a circuit with various resistances (Ohms). With the resistance at 10.0 Ω, the current was 12.0 A. With the resistance at 20.0 Ω, the current was 6.1 A. With the resistance at 30.0 Ω, the current was 4.0 A. With the resistance at 40.0 Ω, the current was 2.9 A. Finally, with the resistance at 60.0 Ω, the current was 2.0 A. Follow all of the steps above. Predict the current with the resistance at 12 Ω, and at 90 Ω.

Lab #1

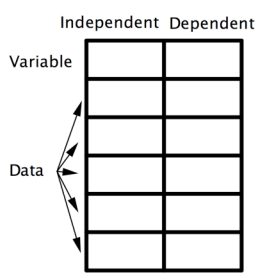


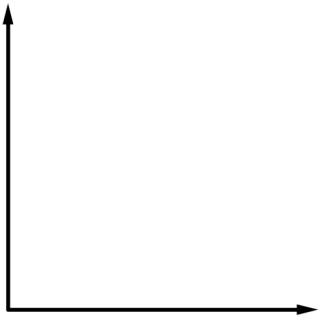


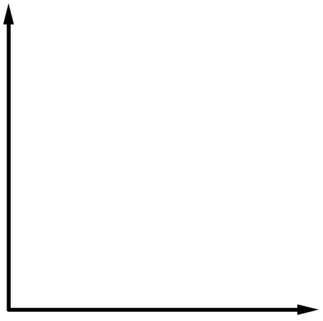


Equation: _____ **Predictions:** _____

Lab #2

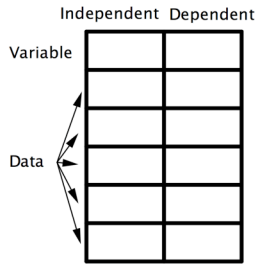


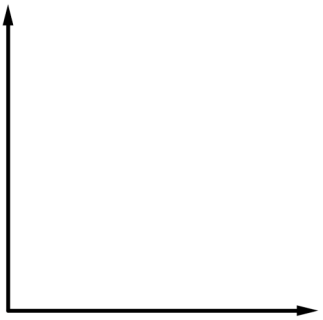


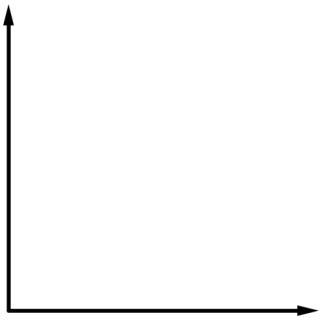


Equation: _____ **Predictions:** _____

Lab #3

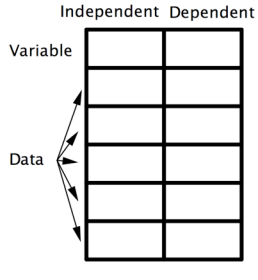


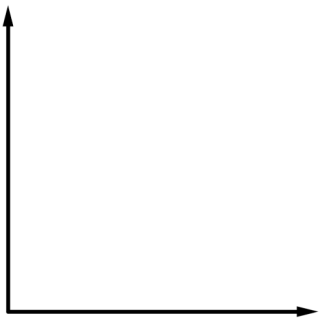


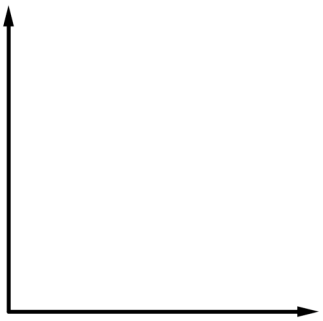


Equation: _____ **Predictions:** _____

Lab #4







Equation: _____ **Predictions:** _____