

Math 95 -- Project 2 -- Spring 2010 -- Plassmann

Names: _____

Rules:

- Work in groups of two or three.
 - Introduce yourselves.
 - Work together! Make sure all the people in your group are participating equally. You should all be working on the same problem at the same time. Make sure everyone understands the answer before you move on.
- Make a clean and clear copy to turn in.
- Turn in one paper per group.
 - It is your responsibility to make sure that your full name is on the paper turned in by the group.

Your score will depend upon: Neatness, Clarity, Organization, Thoroughness, and Correctness.

This paper should be worked on in groups on your own time -- you are welcome to meet during our regular class time on Friday, April 30 if you want. Set up a time and place that works well for the people in your group. The project is due on Friday, May 8, in class.

What's to Drink?

This table gives the annual U. S. per-person consumption of milk and soft drinks:

Year	Gallons of Milk per person per year	Gallons of Soft Drinks per person per year
1950	36.4	10.8
1960	32.6	13.4
1970	29.8	24.3
1980	26.5	35.1
1990	24.3	46.2
2000	22.6	49.3

- (1) Rewrite the table in a more usable form by filling in:
t = the number of years since 1950,
M = gallons of milk per person.
S = gallons of soft drinks per person.

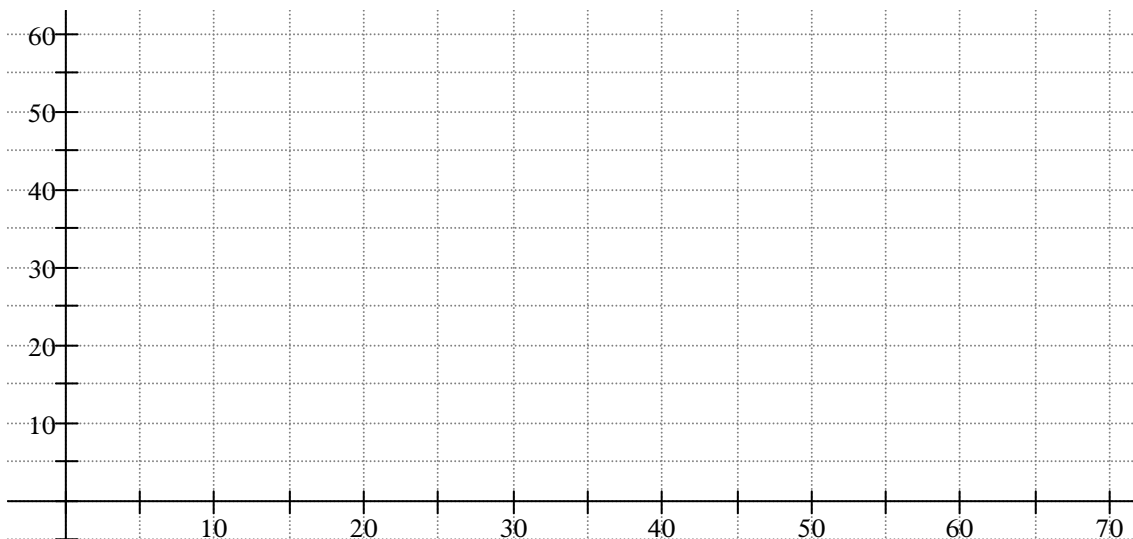
t	M	S

- (2) Enter the data for milk consumption in your calculator and find a linear model (use "LinReg") that fits the data. Write down the equation -- round the decimals to the hundredths place. Use the variables M and t.

- (3) Enter the data for soft drink consumption in your calculator and find a linear model (use "LinReg") that fits the data. Write down the equation -- round the decimals to the hundredths place. Use the variables S and t.

(4) How well do the equations seem to fit the data? Look at the graphs of the data, and the graphs of the equation, on your calculator. How well does each one line up?

(5) Make a good graph of your models (in other words, graph the lines, don't graph the original data points)*. Include labels (words!) on both axes. Label the two lines clearly – you could use two different colors for the two graphs.



(6) Use your milk equation to find M when $t = 45$. Show your work, and explain what your answer means, using a sentence.

(7) Use your milk equation to find t when $M = 25$. Show your work, and explain what your answer means, using a sentence.

* The easiest way to graph a good line would be to find y for $t = 0$, and $t = 70$, plot both those points on your graph, then use a ruler to connect the points. Do the same thing for both equations.

(8) Use one of your equations to find S when $t = 45$. Show your work, and use a sentence to explain what your answer means.

(9) Use one of your equations to find t when $S = 25$. Show your work, and use a sentence to explain what your answer means.

(10) Find the intersection of the two lines. Show your work, and use a sentence to explain what your answer means.

(11) Find the horizontal intercept of the M equation. Show your work, and use a sentence to explain what your answer means.

(12) Find the vertical intercept of the M equation. Show your work, and use a sentence to explain what your answer means.