MAT 105 Quiz 2.1-2.4 (gray) Spring 2009 Name _____

Relax. You have done problems like these before. Even if these problems look a bit different, just do what you can. If you're not sure of something, please ask! You may use your calculator. Please show all of your work and write down as many steps as you can. Don't spend too much time on any one problem. Please leave the following grading key blank for me to use. Do well. And remember, ask me if you're not sure about something.

Problems	1	2	3	Total		Grade
Points					%	
Out of	10	28	12	50		

1. The following table shows my annual energy bills for my house 1 year after moving in, 4 years later, and 10 years later.

Years in house	1	4	10
Energy bill	\$1200	\$1760	\$3112

   (a) How much is the rate of heating bill increase during the first four years I lived in my house?

   (b) How much is the rate of heating bill increase during the next time period?

   (c) Is this dependence linear? Explain why or why not in a sentence.

2. Buoy instruments in the oceans report changes in the sea level to NASA. In 2002 the sea level (averaged across all the oceans) was 2 millimeters above the historical sea level. In 2008 the sea level was 24 millimeters above the historical sea level. You can assume the increase is linear.

   (a) Name the variables, including units.

   (b) Display the information from the story in a table.

   (c) What is the rate of increase for the sea level?
   If you are not sure, you are welcome to find the equation in part (d) first.

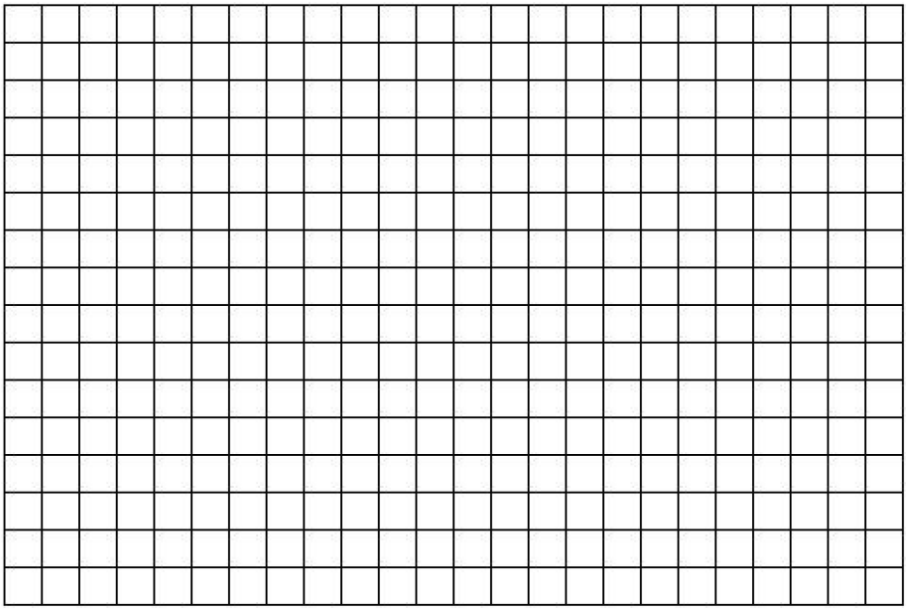
   (d) Write an equation relating the variables.

   (e) In what year will the sea level be 40 millimeters above the historical level?

3. The following table shows the number of calories burned per minute of various people walking at 3 mph.

Name	Weight (pounds)	Calories
Mel	100	3.1
Gaby	120	3.7
Dianne	150	4
Karl	170	4.3
Dietrich	200	5.4
Ian	220	6.0

(a) Make a scatterplot showing the data. *Scale your axes to start the weight at 80 pounds and to start the calories at 3.*



(b) Draw the line through the first two points listed (Mel and Gaby). Explain why that line does not fit the data well. *Label this line B.*

(c) Draw a line that you think fits the data better. *Label this line C.*