MAT 105 Quiz 2.1-2.4 (white) Fall 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 the amount of cubic feet of wood in a managed forest when it was first planted, 10 years later, and 60 years later.

Age of trees (years)	0	10	60
Total volume of wood (cubic feet)	0	80	1600

(a) What is the annual rate of increase in volume for the forest during the first ten years?

(b) What is the annual rate of increase in volume for the forest during the next time period?

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

2. A report by the National Snow and Ice Data Center shows September sea-ice declining in the Northern hemisphere. In 1980 the extent of the sea-ice was 3.1 million square miles. In 2007 the sea-ice extended 1.7 million square miles. You can assume the decline is linear.

(a) Name the variables, including units.

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

(c) What is the rate of sea ice decrease?
*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 there be no more September sea-ice?

3. For one species of deciduous tree (or a tree that sheds it leaves each fall), it is known that the shorter the tree is in height, the longer its leaves will last through the fall. The following table shows how many days a tree had leaves for a given height:

Height (meters)	Days with leaves
0.7	187
1.5	175
2.5	172
7.5	160
15	153
25	145

(a) Make a scatterplot showing the data. *Scale your axes to start the height at 0 meters and start the days with leaves at 100.*
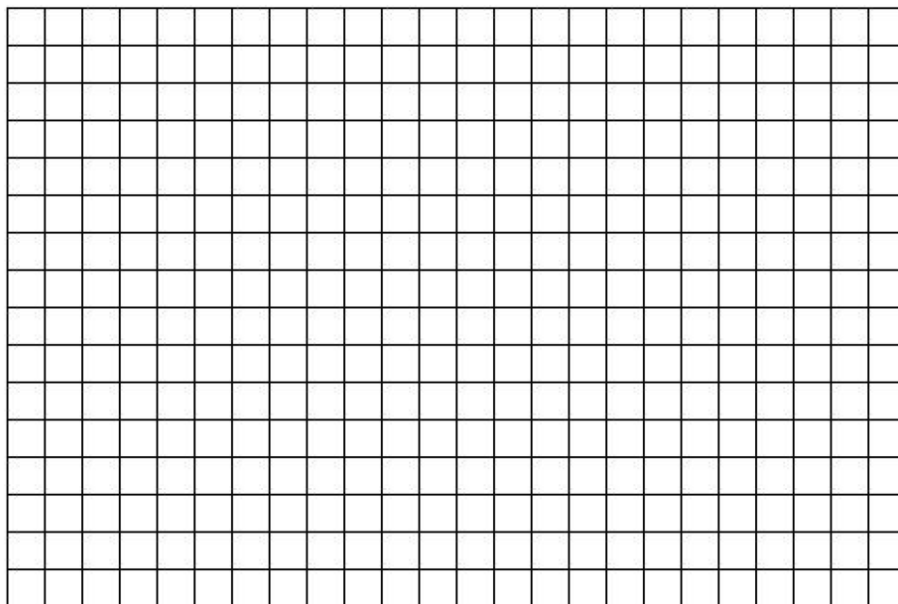
(b) Draw the line through the first two points listed (0.7 and 1.5 meters). Explain why that line does not fit the data well. *Label this line B.*

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