Name_____ Date_____

Linear Regression Homework

A convenience store manager notices that sales of soft drinks are higher on hotter days, so he assembles the data in a table, show below.

a) Find and graph a linear equation that models the data.

y= _____

b) Use the equation to predict soft drink sales if the temperature is $95^\circ\mathrm{F}$.

High Temperature ($^\circ\mathrm{F}$)	Number of Cans Sold
55	340
58	335
64	410
68	460
70	450
75	610
80	735
84	780

To estimate ages of trees, forest rangers use a linear model that relates tree diameter to age. The model is useful because tree diameter is much easier to measure than tree age (which requires special tools for extracting a representative cross section of the tree and counting the rings). Use the data in the table below collected for a certain variety of oaks to answer the following questions.

a) Find and graph a linear equation that models the data.

y= _____

b) Use the equation to estimate the age of an oak whose diameter is 18 in.

Diameter (in.)	Age (years)
2.5	15
4.0	24
6.0	32
8.0	56
9.0	49
9.5	76
12.5	90
15.5	89

Biologists have observed that the chirping rate of crickets of a certain species appears to be related to temperature. The table shows the chirping rates for various temperatures.

a) Find and graph the regression line.

y= _____

b) Use the linear regression to estimate the chirping rate at $100^\circ\mathrm{F}$

Temperature ($^\circ\mathrm{F}$)	Chirping Rate (chirps/min)
50	20
55	46
60	79
65	91
70	113
75	140
80	173
85	198
90	211