Name:_____ Math 130 Day 24 Lecture Worksheet
Date: Sections 4.1, 4.2, and 14.2: Linear Regression Analysis

Ex: The chirp rate of crickets is strongly correlated with the outside temperature. On 8 different days a statistician went outside and measured two quantities: the number of chirps a cricket made in a minute (x) and the outside temperature (y) . The data is in the table below.

X Chirps in 1 minute	88	118	110	86	120	103	96	90
Y Outside Temperature (˚F)	69.7	93.3	84.3	76.3	88.6	82.6	71.6	79.6

a) Find the linear correlation coefficient r
b) Find the equation of the least squares regression line
c) Predict the outside temperature if you hear a cricket chirping 140 times per minute
d) Find a 95% prediction interval for the outside temperature if a cricket is chirping 140 times per minute

Ex: In order to study global warming, the data below was taken over different years (CO2 levels in parts per million and temperature in °C)

CO2 x	314	317	320	326	331	339	346	354	361	369
Temperature y	13.9	14	13.9	14.1	14	14.3	14.1	14.5	14.5	14.4

a) Find the linear correlation coefficient r
b) Find the equation of the least squares regression line
c) Predict the temperature of the Earth if the CO2 levels reach 400 parts per million
d) Construct a 90% prediction interval for the temperature of the Earth if the CO2 levels reach 400 parts per million