Quiz 3
Stat 2, summer 2008
Closed book
25 minutes

Name:_____ **SID:**_____

Answer all SIX questions. All questions are of equal value. Indicate your final answer clearly.

Here are the daily ice cream sales and high temperatures for a week for a local ice cream shop:

Temp. (degrees F)	Sales (US$1000)	Temp*sales	Temp (std units)	Sales (std units)	Temp in std units * sales in std units
82	4.5	369.0	0.1846	0.1134	0.0209
91	5.4	491.4	1.4771	1.8996	2.8059
88	4.7	413.6	1.0463	0.5103	0.5340
83	3.8	315.4	0.3282	-1.2759	-0.4188
77	3.9	300.3	-0.5334	-1.0774	0.5747
74	4.2	310.8	-0.9642	-0.4820	0.4647
70	4.6	322.0	-1.5386	0.3119	-0.4799

The SD of temperature is 6.963 degrees F and the SD of sales is 0.5039 thousand dollars.

Question 1: What is the correlation between temperature (in degrees Fahrenheit) and ice cream sales (in thousands of dollars)?

Question 2: What is the correlation of temperature in degrees *Celsius* and ice cream sales in thousands of dollars? *[Note: Degrees Celsius = (degrees Fahrenheit – 32) x 5/9]*

Height and index finger length are approximately normally distributed.
Mean height = 67 inches
SD of height = 4 inches
Mean index finger length = 2.5 inches
SD of index finger length = 0.2 inches
Correlation = 0.75

Question 3: What is the regression prediction for the height of a person with an index finger length of 2.9 inches?

In a certain class, midterm and final scores are normally distributed with a correlation of 0.4.

Question 4: If a student scores on the 20th percentile on the midterm, what percentile do you predict he/she scores on the final?

Question 5: If a student scores on the 20th percentile on the final, what percentile do you predict he/she scores on the midterm?

The scatter plot of *average life expectancy* and the *log of the number of people per television* for all countries in the world gives a football-shaped data cloud. The correlation between average life expectancy and the log of the average number of people per television for countries is –0.7.

Question 6: I select a country at random. I do not tell you which one it is, but I tell you it has a high average life expectancy. Would you expect that country to have a higher or lower number of people per television than the average number over all countries?