AP Statistics – Correlation, Regression, Prediction Worksheet *Chapters 7 & 8*

1. Below are heights and weights data for male and female AP Stat students. Create TI lists MHT, MWT, FHT, FWT, and enter the data. You will need to keep these data for several days. (Remember, to create a list: (1) put the cursor atop the names (L1,L2,...), then (2) space to the right, and (3) type the new name in the blank space. You can then access these names via the LIST NAMES menu.)

2. Is it reasonable to assume these data are drawn from populations that are normally distributed? Check summary statistics and histograms for each variable.

3. a) Make a scatterplot for each gender (STAT PLOT, first plot type). Which is the explanatory variable?
   b) Describe the relationship (form, strength, direction, outliers, etc.) for each gender.

4. a) Calculate and interpret *r* for each gender.
   b) What would you predict about the weight of
      . . . someone of average height?
      . . . a male 2 standard deviations above average in height.
      . . . a female 1 standard deviation below average in height?
   c) Explain how this illustrates the concept of regression toward the mean.
   d) Calculate the coefficients of determination, r^2, and interpret each in the context of this relationship.

5. a) Write an equation of the least squares line of best fit for each gender.
   b) Check the residuals plots. Do you think that a line is a good model? Explain.
   c) Explain what the slope of each line means in the context of this relationship.
   d) Predict weights for : a 60" male; a 60" female; a 70" male; a 70" female
   e) Predict the weight of a 7'2" male; of a 20" newborn baby girl. Comment on these results.

MALES

HT(in)	WT(lb)
67	140
71	165
73	168
71	142
74	200
74	175
68	135
73	145
71	150
72	155
69	168
66	106
70	144

HT(in)	WT(lb)
71	132
70	140
71	140
70	140
69	130
70	150
74	170
71	175
74	180
72	150
70	150
73	190

FEMALES

HT(in)	WT(lb)
63	117
62	107
75	170
61	91
62	118
63	130
66	135
63	120
67	125
67	117
64	135
61	88

HT(in)	WT(lb)
64	110
63	123
64	110
71	134
64	129
62	129
65	123
64.5	115
68.5	122
65.5	120
64	111
64	115