A.P. Statistics
Assignment 2-7

1) Assessing the goodness of fit of a regression line involves considering several things, and no single characteristic of data is sufficient for a good assessment. Consider the characteristics below. How does each contribute to an assessment of fit? That is, for each piece of information, what about it would indicate a "good" best-fit line?

   a) The shape of the residual plot

<type answer here>

   b) The correlation coefficient

<type answer here>

   c) The demonstration of seriously influential points

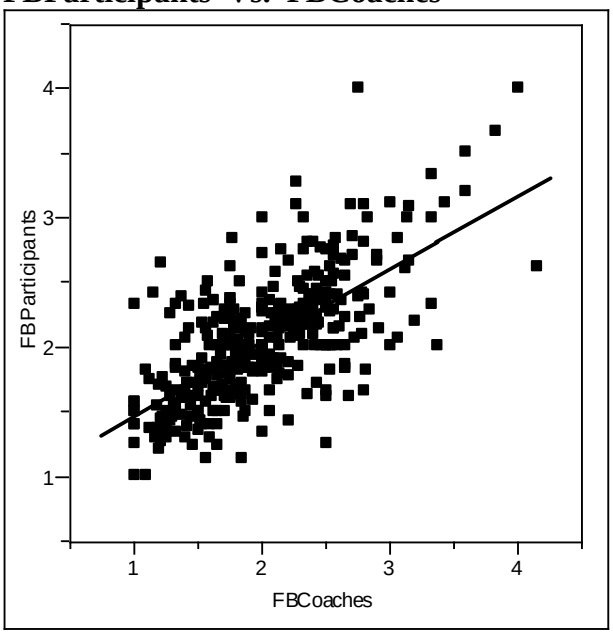
<type answer here>

   d) The coefficient of determination

<type answer here>

2) The *Des Moines Register* recently reported the ratings of high school sportsmanship as compiled by the Iowa High School Athletic Association. For each school the participants and coaches were rated by referees, where 1 = superior, and 5 = unsatisfactory. A regression analysis of the average scores given to football players and coaches is shown below.

FBParticipants Vs. FBCoaches



Linear Fit

FBParticipants = 0.902 + 0.568 FBCoaches

Summary of Fit

RSquare	0.452
RSquare Adj	0.450
s	0.355

Analysis of Variance

Source	DF	SS	MS	F Ratio
Model	1	37.505	37.505	298.2723
Error	362	45.518	0.126	Prob > F
C. Total	363	83.022		<.0001

a) Interpret the value of the correlation between the ratings of coaches and participants.

<type answer here>

b) Interpret the value of the coefficient of determination (not r-squared adjusted – we won't use that).

<type answer here>

True or False section (highlight or box the correct answer)

T F 1. If on average *y* increases as *x* increases, the correlation coefficient is positive.

T F 2. Pearson's correlation coefficient, *r*, does not depend on the units of measurement of the two variables.

T F 3. The value of Pearson's *r* is always between 0 and 1.

T F 4. If r is close to 1, then the points lie close to a straight line with a positive slope.

T F 5. The slope of the least squares line is the average amount by which y increases as x increases by one unit.

T F 6. The least squares line passes through the point $(\bar{x}, \bar{y})$.

T F 7. The higher the value of the coefficient of determination, the greater the evidence for a causal relationship between x and y.