CH3 LAB - CORRELATION & REGRESSION

A measure of verbal aptitude scores, the Language Aptitude Scale (LAS), was administered to both members of 6 dizygotic twins, one male and one female. Scores appear below.

```
    Female          Male
      15             13
      11             10
      17             12
       9             10
      13              9
      21             14

M     14.3333       11.3333

SD     4.3205        1.9664
```

1. If performance on the LAS is partly due to genes, scores of males should be similar to their female twin. That is, we should be able to predict male scores better than chance given scores for their female twin. Create a rough graph to determine if this expectation is consistent with the results.

2. Enter the data in SPSS and graph the results to get a better visual impression of whether such a relationship exists. Enter vertical and horizontal lines for the means. In what quadrants do scores fall?

3. Use SPSS to compute quantities required to calculate a summary measure of the relationship between male and female scores. Calculate the statistic and compare it to the corresponding statistic in SPSS. Does it agree with your impression from the graph? Could the relationship have occurred by chance?

4. Use the quantities from 2 to calculate an equation for predicting male scores from female scores. For a few cases, compute scores that indicate what can be predicted and what cannot be predicted.

5. Perform the analysis in 4 using SPSS. Identify output that corresponds to previous calculations.

6. Perform two additional tests to determine whether we can conclude that the relationship between male and female scores is unlikely to have occurred by chance.

7. What conclusion can you draw about the strength of the relationship between male and female scores?

8. Research suggests that verbal scores for females are higher than those for males. Are these results consistent with that hypothesis?

9. Enter the following commands to convert the *verbal* scores to results from unrelated females (*gend* = 1) and males (*gend* = 2). Perform SPSS analyses to determine whether females scored higher than males.

```
VARSTOCASES /MAKE verbal FROM fverb mverb /INDEX gend.
SORT CASES BY gend.

*Or re-enter data in Independent format.

DATA LIST FREE/ gend verbal.
BEGIN DATA
1 15         1 11         1 17         1  9         1 13         1 21
2 13         2 10         2 12         2 10         2  9         2 14
END DATA.
```