Mrs. Daniel - AP Stats
Height & Arm Span Correlation Activity

Name: ________________________________

Measure your height and arm span. Record data.

Height (inches): ___________ Arm span (inches): ___________

A. Create and label a scatterplot of the classes’ data:

B. Calculate and interpret the correlation coefficient.

C. Calculate your personal contribution to the correlation coefficient.

Class mean height ($\bar{X}$): ___________ Class standard dev height (Sx): ___________

Class mean arm span ($\bar{Y}$): ___________ Class standard dev arm span (Sy): ___________

\[
\frac{(your \ height - \bar{x})}{Sx} \cdot \frac{(your \ arm \ span - \bar{y})}{Sy}
\]

Who contributed the least? _________________ Who contributed the most? _________________
D. Remove the person who “contributed” the most to the correlation and re-calculate the correlation coefficient.

Revised Correlation Coefficient: _____________________

How much/what percent did the value change by?

E. What is the least squares regression equation for this association? (Remember to re-add the person we removed in part D). Define any variables used. Draw line on scatterplot in part A.

LSRL: ______________________________

F. Calculate your personal residual value.

My predicted arm span (plug in your height to LSRL): _________________

Residual = actual arm span - predicted arm span: _________________

Who had the highest residual? _________________  Who had the lowest residual? _________________

G. Remove the person who had the highest residual value and re-calculate the correlation coefficient.

Revised Correlation Coefficient: _____________________

How much/what percent did the value change by? How does this compare to the value in part D?

H. Create and label a residual plot of the classes’ data. Circle your personal data.