

Special Problem 3

Are SAT Scores Linked?

The SAT data collected from a distance learning class is presented on the back of this sheet. For purposes of reading the table, the first student's SAT Math score was 680, and his/her SAT Critical Reading score was 780.

Task. Use the questions below as a guide to analyze the data in the manner you think appropriate.

- 1) What are the variables in this activity? Are the variables quantitative or categorical? Is there an explanatory-response relationship? If so, which is the explanatory variable and which is the response variable?
- 2) Does the scatterplot describe a strong association, a moderate association, a weak association, or no association between these variables?
- 3) Do these data describe a linear trend? If so, then use your calculator to determine the equation of the least-squares regression line. Overlay this regression line on your scatterplot. Considering the appearance of the scatterplot, the regression line, and the correlation, write a brief statement about the appropriateness of this regression line to model the data. Is the line useful?

Model. You should work on this with your assigned partner, both inside and outside class.

Computer. Use statistical software, like TI-nspire, Excel, or the like, to aid you in completing this Special Problem.

Report. Write a report that summarizes your investigation. It is preferable to insert computed results and graphs into your report at appropriate places. It is acceptable, but less desirable, to include plots and computer output at the end of your narrative, like appendices. Try to keep graphs and your commentaries about these graphs together on the same page, if possible, so the reader won't have to flip back and forth when reading your report. It is preferable to use mathematical notation precisely. This report should be submitted in Google Classroom and it is *strongly* preferred that it is typed. Both partners should submit the report (separately) and both names must appear on the first page of the report.

Grading. The score awarded for this Special Problem will depend on the quality of your analyses, the clarity of your explanations, the appropriateness of your conclusions, and whether you adhered to the general guidelines for Special Problems. A scoring rubric will be available online alongside the assignment.

Deadline. This Special Problem is due on Monday, October 2.

SAT Math and £4 7' Critical Reading data collected from a class.

SAT Math	SAT Cr. Reading	SAT Math	SAT Cr. Reading
680	780	570	500
450	570	600	510
440	550	700	680
610	500	720	770
730	720	650	800
530	570	670	660
700	600	800	590
640	530	800	800
740	800	570	580
650	740	590	600
580	550	610	680
520	590	580	640
620	580	690	600
700	740	660	580
640	560	620	670
710	660	750	560
700	730	610	610
580	610	540	500
520	480	500	470
600	650		

