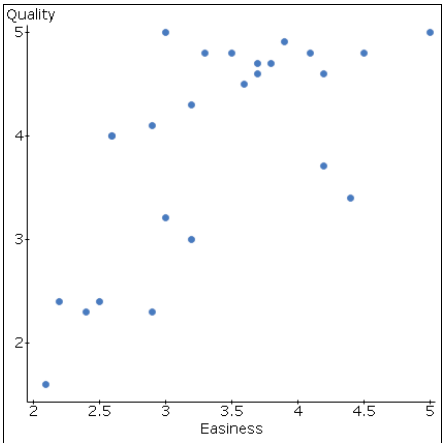
# Getting Ready for the Midterm – Chapter 4

## Practice Problems – Answer Key

You can find the data on the StatCrunch group page. It is titled "Unit 2 Project".

1) COS students rated 25 math instructors in terms of easiness (column Easiness) and overall quality (column Quality).

a) Create a scatterplot for the data, treating Easiness as the independent variable.




b) Calculate the correlation coefficient.

$r = 0.669$

c) Is there a linear association between the two variables?
Is it positive or negative?

***Since r is greater than the critical value for n = 25 (0.396), there is a linear association. The linear association is positive because r is positive.***

d) Calculate the regression equation for overall quality based on an instructor's easiness rating.

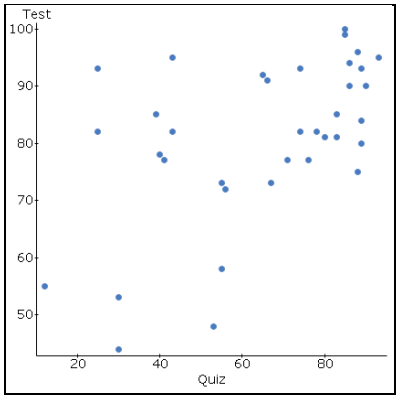
Quality = 0.86738182 + 0.90195804 Easiness

e) If an instructor has an easiness rating of 3.5, predict the instructor's overall quality rating.

$Quality = 0.87 + 0.90(3.5) = 4.02$

2) Quiz averages (column Quiz) and test averages (column Test) for 36 COS Math 230 students are provided.

a) Create a scatterplot for the data, treating Quiz as the independent variable.




b) Is there a linear association between the two variables?
Is it positive or negative?
Explain how you determined this.

$r = 0.530$, which is greater than the critical value of 0.361 so there is a positive linear association.

c) If a student has a quiz average of 75, predict the student's test average.

Test = 59.712579 + 0.3239053 Quiz

Test = 59.71 + 0.32 (75) = 83.71

d) According to the data, as a student's quiz average increases the student's test average increases.
Explain, in your own words, how you determined this. ***The slope of the equation is positive.***