Math 361

Correlation coefficient – Inv. 5.7

Correlation Guessing Game – page 360

Last Time – Scatterplots

Describe the relationship between **two quantitative** variables:

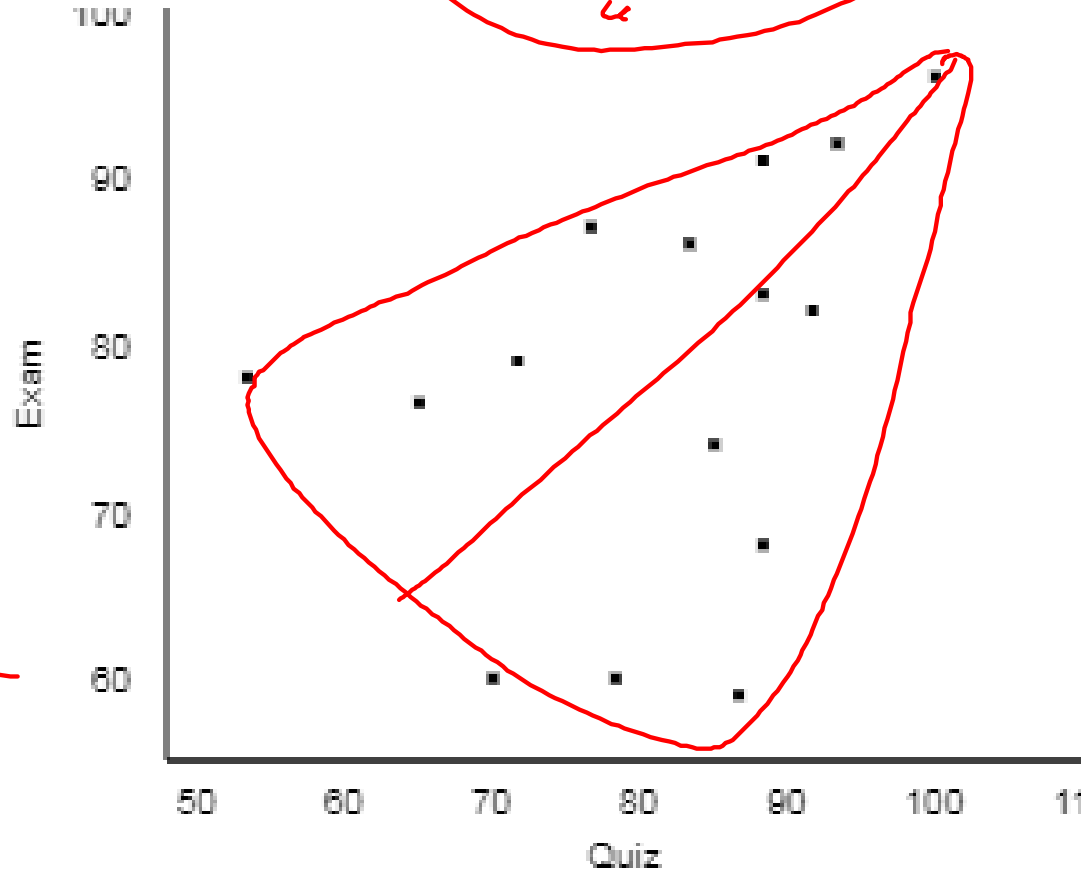
Direction: *Is there a positive or negative association?*

Linearity: *Is the overall pattern a line or not?*

Strength: *How closely do the points follow the pattern?*

Example: Quiz grades and Exam grades

- Direction
- Linearity
- **Strength**



Correlation Coefficient

The **correlation coefficient** measures the **strength** of a *linear relationship* between two variables.

If not linear, can't use corr.

Notation: r

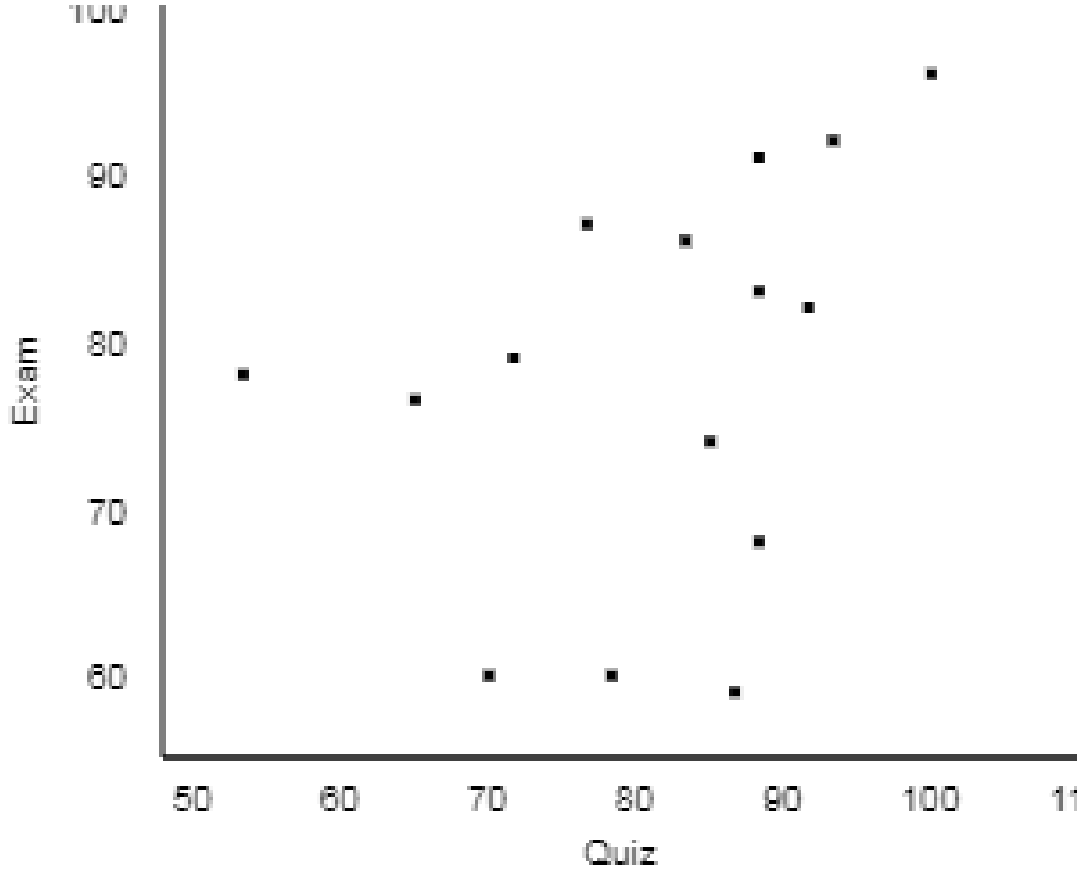
Calculation: Analyzing Two Quantitative Variables Applet
or Minitab

Formula:

Example: Quiz grades and Exam grades

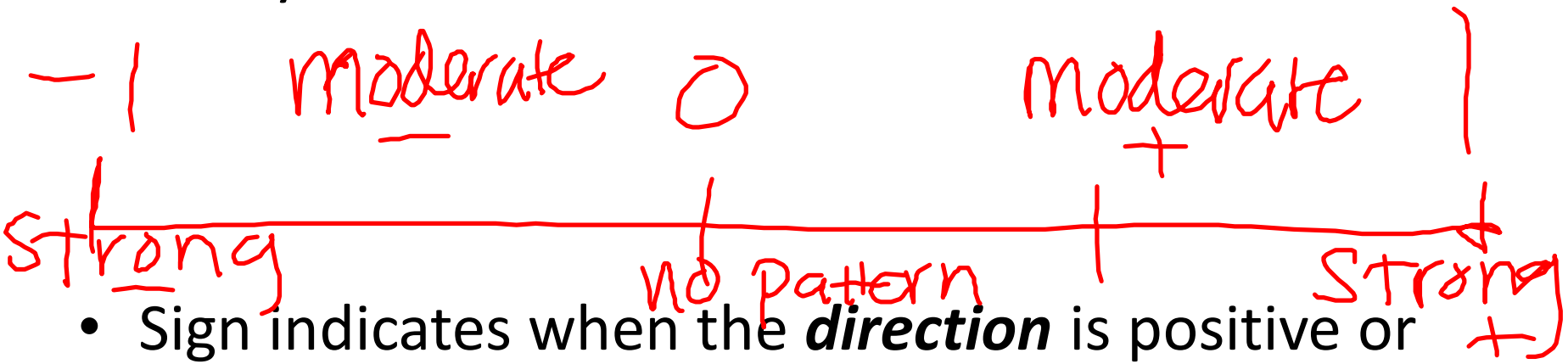
- Direction
- Linearity
- **Strength**

r = 0.357



Correlation Coefficient

- **Only** appropriate to compute if you answer "yes" to the ***linearity*** question "Is the pattern linear?"
- Always between – 1 and 1.

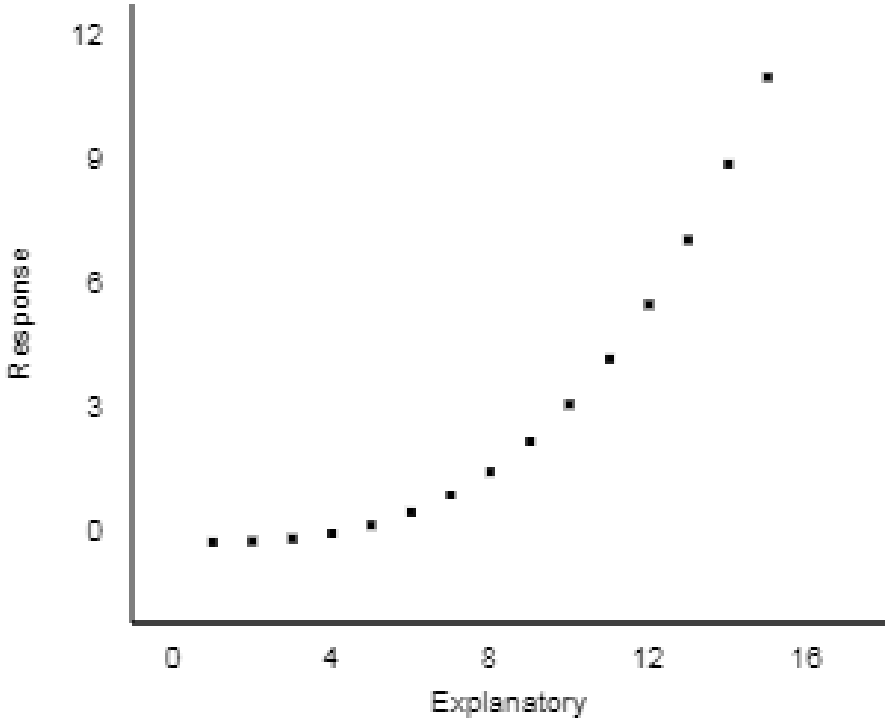


- Sign indicates when the ***direction*** is positive or negative
- Unitless

Example: Guess the correlation game

http://www.rossmanchance.com/applets/GuessCorrelation.html

Is it appropriate to compute the correlation coefficient?



r = 0.924

Inv. 5.7: Golf

- Do as much as you can of parts (a)-(f) and (i), (k)-(n) in class.
- Note: the scatterplots for part (c) are on the top of page 356.
- Skip parts (g), (h). Do parts (j) and (o) at home with the applet.