

# Test 2 Review

Correlation & Linear  
Regression

# Data

Alcohol (ml) (x)	Reaction Speed (y)
5	88
10	90
20	100
40	61
70	70
110	15

# Predict:

- Reaction speed after 50 ml of alcohol
- A reaction speed of 50 mph corresponds to how many ml of alcohol?

# Interpret the Data

- How confident are you in a relationship based on a significance level of 0.05?
- What does  $R^2$  tell us about the model for the data?

# Find $r$ and Line of Regression

$$r = \frac{n(\sum xy) - (\sum x) \cdot (\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2] \cdot [n \sum y^2 - (\sum y)^2]}}$$

$$m = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}$$

$$b = \frac{\sum y}{n} - m \frac{\sum x}{n}$$