

## Scatter Plots

### Displaying and Interpreting Bivariate Data

Learning Targets:

- Construct and Interpret Scatterplots
- Identify explanatory and response variables
- describe bivariate distributions in context- including strength, outliers, form, and direction.

Feb 3-1:22 PM

• Scatter plots are similar to line graphs in that each graph uses the horizontal ( x ) axis and vertical ( y ) axis to plot data points.

• Scatter plots are most often used to show correlations or relationships among data.

Feb 3-1:27 PM

Scatterplots show the relationship between two numerical variable

**Explanatory Variable:**

- Independent (the one we can possibly change)
- Explains or causes the relationship
- x-variable (horizontal)

**Response Variable**

- Dependent variable (depends on other variable)
- Reacts to change in explanatory variable
- y-variable (vertical)

Feb 3-1:30 PM

### Describing Bivariate Data

**Strength**

strong      Kind of strong      Weak

**Context**

**Outlier**

**Form**

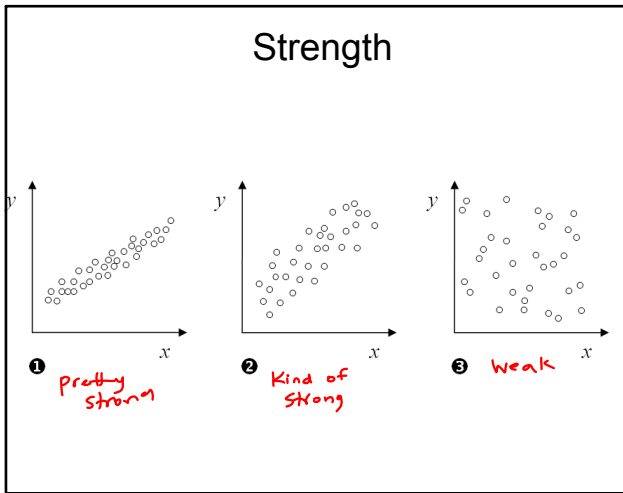
linear      not linear

**Direction**

+

negative

Feb 4-12:08 PM



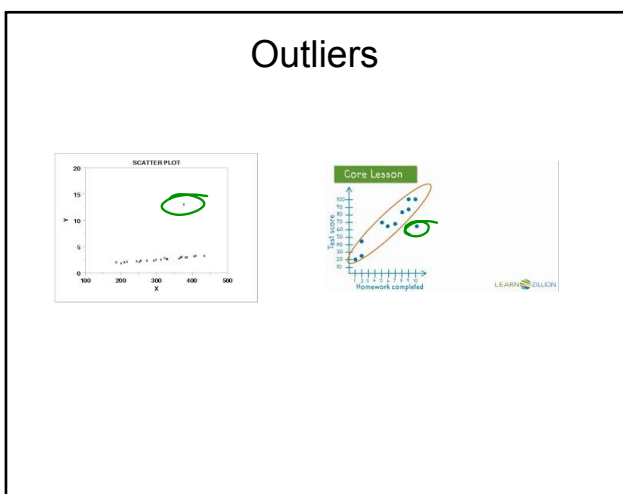
Feb 4-12:26 PM

### Context

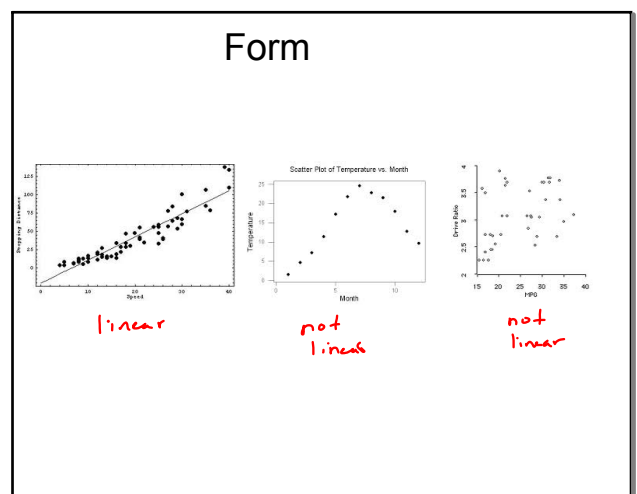
Determine the explanatory and response variable. Is there a relationship?

- The size of a car or truck and the amount of miles it can travel per gallon of gas.
  - > Explanatory= Size of car or truck
  - > Response= miles per gallon
  - > Relationship? yes - negative
- The speed of a runner and the amount of races he/she wins
  - > Explanatory= Speed of runner
  - > Response= # races won
  - > Relationship? yes, +
- Height and IQ
  - > Explanatory=
  - > Response=
  - > Relationship? no

Feb 4-12:31 PM

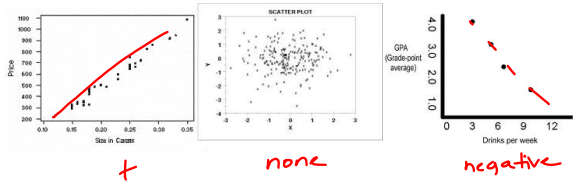


Feb 4-12:21 PM



Feb 5-12:26 PM

### Direction

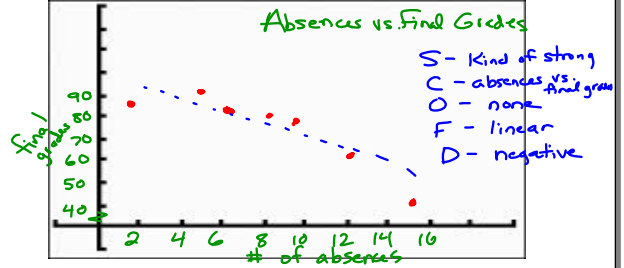


Feb 5-12:29 PM

Mr. Bluman wanted to see if there was a relationship between the number of absences and the final grades of the students in STATS 101. A random sample of 7 students shows the following information:

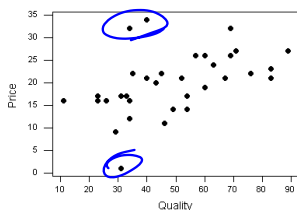
Number of Absences	6	2	15	9	12	5	8
Final Grade (%)	82	86	43	74	58	90	78

Construct a scatterplot to show the results and address the S.C.O.F.D.



Feb 5-12:33 PM

Address the S.C.O.F.D. of this graph showing the relationship between the quality of a product and the price of the product.



- S- weak
- C- quality vs. price
- O- (20,1) (32,32) (40,34)
- F- not linear
- D- positive

Feb 5-12:43 PM

### Section 6.1

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#### Learning Targets

- \* I can construct a scatterplot to display bivariate data
- \* I understand and can identify explanatory and response variables.
- \* I can interpret a scatterplot using SCOFD.

Oct 11-7:29 PM