

Warm Up



The National Survey of Adolescent Health interviewed several thousand teens (grades 7 to 12). One question asked was, "What do you think are the chances you will be married in the next ten years?" Here is a two-way table of the responses by gender:

1. What percent of the responders were male?

2. What kind of distribution is your previous answer?

	Female	Male
Almost no chance	119	103
Some chance, but probably not	150	171
A 50-50 chance	447	512
A good chance	735	710
Almost certain	1174	756

Objective: SWBAT create and describe a scatterplot to show a relationship between two variables.

Agenda:

- Warm Up
- Notes
- Practice
- Reflection

HW: pg. 158 #2-20 even

Notes: Scatterplots

Scatterplots are graphs that show a sample of bivariate data (two variables).

The response variable is one that measures the outcome of a study, and an explanatory variable is one that might influence the response variable.

Ex) blood pressure vs. amount of sodium in your diet
response *explanatory*

amount of rain vs. weed growth (height)
explanatory *response*

win percentage of a sports team vs. attendance at games
explanatory *response*

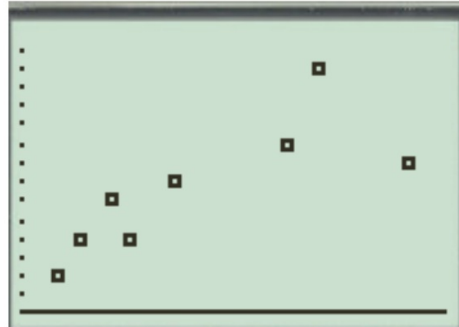
Making a Scatterplot

1. Decide which variable goes on which axis
 - a. if you think one is an explanatory variable, it goes on the horizontal axis
2. Label & scale the axes
3. Plot data points

*the calculator does this

Example

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Describing Scatterplots

In other graphs we described:
(SOCS)

Now we want to know

- direction: lower left to upper right (positive),
upper left to lower right (negative)
- form: linear or nonlinear
- strength: how strong is the pattern (weasel words)
- outliers: anything outside the overall pattern

(DOFS)

Example

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Correlation Coefficient

The correlation, r , is a number between -1 and 1 that measures the direction and strength of a linear relationship between two variables. r is part of the stat diagnostics on the TI-84.

- closer to ± 1 : stronger
- closer to 0: weaker

Generally, r^2 is a much better description of the strength of the relationship. We'll see why when we get to it.

We won't go over the formula, but it goes like this:

1. standardize the data (z-scores?)
2. take an average

More About r

- Correlation doesn't "know" which variable is explanatory and which one is not. You have to do that!
- r has no units (like z-scores)
- because we're standardizing to find r, it won't change if we use different units of measurement

Practice

pg. 158 problems

Reflection

What does a correlation coefficient do for us?