

Name: Key

The standards below refer to two pieces of data from the survey I sent out to the class which 136 of the 144 students registered for the classes that took part in the survey.

- Gender
- Whether or not the respondent was a member of Pinterest

Standard Two: Quiz Five – Experiments: Samples vs. Populations, and Sampling

Identify the following.

Sample: 136 students surveyed

Population: 144 students registered

Standard Three: Quiz Five – Types of Data

Identify the data type of the following – i.e. Discrete Quantitative, Continuous Quantitative, Categorical

Gender: Categorical

Pinterest: Categorical

Standard Nine: Quiz Five – Contingency Tables

Given the contingency table below, is there an association between gender and whether or not someone is a user of Pinterest? If so, what is that association?

Gender\Pinterest	No	Yes	Total
Female	0%	100%	100%
Male	81.25%	18.75%	100%

There appears to be a clear association between gender and whether or not someone is a member of Pinterest; all females are members whereas only 18.75% of males are members.

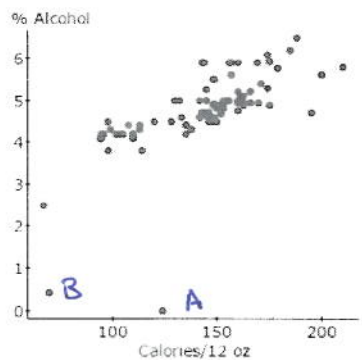
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<http://www.statcrunch.com/app/index.php?dataid=1566729>

The standards below refer to three pieces of data about 100 beers: alcohol percentage, Calories per 12 oz. and carbohydrates.

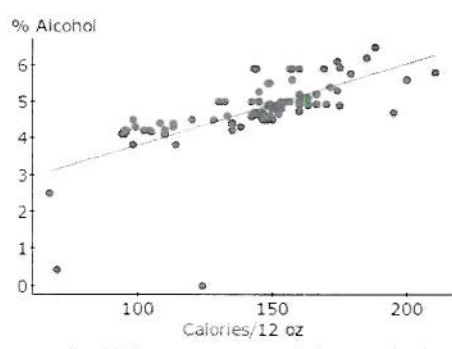
Standard Ten: Quiz Five – Scatterplot

Looking at the graph below, would you say there is an association between calories and alcohol percentage? If so, what is the strength and direction of the association?



Here there appears to be a moderate positive linear association. We should note that there are a few points that seem out of place; these are "non-alcoholic" beverages.

Standard Eleven: Quiz Five – Linear Regression



Simple linear regression results:
Dependent Variable: % Alcohol
Independent Variable: Calories/12 oz
% Alcohol = 1.5716 + 0.0223 * Calories/12 oz
Sample size: 100
R (correlation coefficient) = 0.6929114
R-sq = 0.4801262

- a) What percent of the variation in alcohol percentage is explained by calories/12 oz?
 $R^2 \times 100 = 48.01262$
Roughly 48% of the variation in alcohol percentage is explained by calories/12oz.
- b) Interpret the slope of the regression line.
Slope = .0223
For every unit increase in calories/12oz we expect a .0223 increase in the Alcohol Percentage, on average.
- c) Goose Island IPA has 177 Calories/12 oz – what would we expect the alcohol percentage to be on average?
 $\widehat{\% \text{Alcohol}} = 1.5716 + .0223(\text{Calories})$
 $= 1.5716 + .0223(177)$
 $= 5.5187\%$
Note: the actual percentage is 5.90% Alcohol - our prediction isn't too bad!