

Probability: Contingency Tables

Objectives:

- Finding probability using tables
- Making tables

Exercises:

1. Use the information in the table to answer the following questions. State the probabilities as fractions and round to the nearest hundredth.

	Voted	Did not Vote	Totals
Democrat	35	23	58
Republican	57	28	85
Totals	92	51	143

- a. What is the probability someone chosen at random is a Democrat?
 - b. What is the probability someone chosen at random is a Democrat who voted?
 - c. What is the probability someone chosen at random did not vote and is a Republican?
 - d. What is the probability someone chosen at random did not vote or is a Republican?
 - e. What is the probability someone chosen at random is a Republican or is a Democrat?
 - f. Given that someone is a Democrat, what is the probability they did not vote?
2. Use the information in the table to answer the following questions. State the probabilities as fractions and round to the nearest hundredth.

	Have Instagram	Don't Have Instagram	Totals
Have Facebook	37	13	50
Don't Have Facebook	65	10	75
Totals	102	23	125

- a. What is the probability someone has Facebook?
- b. What is the probability someone does not have any of the accounts?
- c. What is the probability someone has Facebook $\cup$ Instagram?

- d. What is the probability someone has Facebook $\cap$ Instagram?
 - e. Given that someone does not have Facebook, what is the probability they have Instagram?
 - f. Given that someone has Instagram, what is the probability they don't have Facebook?
3. Use the given information below to make and complete a 4 by 4 table that displays all the information, including the total.

We surveyed 200 people. We asked them two questions: Do you support Trump? Are you a Republican? Here are the results:

- A total of 110 people supported Trump, 90 did not.
- A total of 75 people are Republican, the rest are not.
- 50 people who are Republican supported Trump.

Answers:

1a. $\frac{58}{143}; 0.41$

1b. $\frac{35}{143}; 0.24$

1c. $\frac{28}{143}; 0.2$

1d. $\frac{108}{143}; 0.76$

1e. 1

1f. $\frac{23}{58}; 0.4$

2a. $\frac{50}{125}; 0.4$

2b. $\frac{10}{125}; 0.08$

2c. $\frac{115}{125}; 0.92$

2d. $\frac{37}{125}; 0.3$

2e. $\frac{65}{75}; 0.87$

2f. $\frac{65}{102}; 0.64$

3.

	Support Trump	Not Support Trump	Total
Republican	50	25	75
Not Republican	60	65	125
Total	110	90	200

