

Daily Agenda

Learning Targets:
 I can draw a Venn diagram to model a situation.
 I can construct a two-way table to model a situation.

Homework

10.4 WS

Assessments

Unit 10 A Test - 5/5

Do not let what you cannot do interfere with what you can do.
 -John Wooden

Nov 15-8:24 PM

10.3 Conditional Probability

Conditional Probability

$$P(B | A) = \frac{P(A \text{ and } B)}{P(A)}$$

Feb 9-11:33 AM

Example: Use the survey results to answer the following questions.

39% have a pet now and have had a pet.
 61% do not have a pet now.
 86% have had a pet.
 14% do not have a pet now and have never had a pet.

- Find the probability that a respondent has a pet, **given that** the respondent has had a pet.

$$P(\text{have pet} | \text{had pet}) = \frac{39}{86}$$
- Find the probability that a respondent has never had a pet, **given that** the respondent does not have a pet now.

$$P(\text{never pet} | \text{no pet now}) = \frac{14}{61}$$

Mar 24-11:27 PM

56% Inc. Sales = 48% + No Tr. Inc. Sales

May 2-11:24 AM

$$P(\text{pass \#2} | \text{pass \#1}) = 75\% \text{ or } \frac{0.6}{0.8} = 0.75$$

May 2-11:31 AM

10.4 Venn Diagrams

Venn Diagram
 Consists of overlapping circles. Each circle contains elements of a set. Where the circles overlap show elements that the sets have in common.

Feb 9-11:33 AM

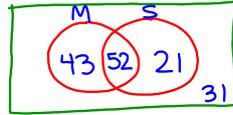
Example

In a class of 147 students, 95 are taking math, 73 are taking science, and 52 are taking both. Draw a Venn Diagram and find each probability if one student is picked at random.

a. $P(\text{not taking math}) = \frac{52}{147}$

b. $P(\text{taking math but not science}) = \frac{43}{147}$

c. $P(\text{taking neither math nor science}) = \frac{31}{147}$



May 1-9:00 AM

Example

In a class: $P(\text{male}) = 0.30$
 $P(\text{brown hair}) = 0.50$
 $P(\text{male with brown hair}) = 0.20$

Draw a Venn Diagram and find each probability if one student is picked at random.

a. $P(\text{female})$

b. $P(\text{male} | \text{brown hair})$

c. $P(\text{female} | \text{doesn't have brown hair})$

May 1-9:41 AM

Example

Freezy's Ice Cream Stand is testing out two new flavors, Birthday Cake and Dandy Cotton Candy. A poll conducted by Freezy's showed that 32 customers liked Birthday Cake, 58 customers liked Dandy Cotton Candy, 12 liked both flavors, and 22 liked neither flavor.

What is the probability that a customer selected at random would like Dandy Cotton Candy?

What is the probability that a customer selected at random would like either Birthday Cake or Dandy Cotton Candy?

May 1-9:44 AM

Two Way Tables

A study of consumer exercising habits includes 300 married people (200 of whom exercise regularly), 150 divorced people (100 of whom exercise regularly), and 100 who never married (40 of whom exercise regularly).

	M	D	S	
Exer . Y	200	100	40	340
N	100	50	60	210
	300	150	100	550

1. $P(\text{married} | \text{exercise regularly}) = \frac{200}{340} = \frac{10}{17}$

2. $P(\text{doesn't exercise regularly} | \text{never married}) = \frac{60}{100} = \frac{3}{5} = 60\%$

4. $P(\text{divorced} | \text{exercise regularly})$

5. $P(\text{married or exercise regularly})$

Apr 7-2:44 PM

Two Way Tables

There are a total of 96 children of ages 4, 5, 6.

- 37 of these children cannot swim.
- 11 four-year olds cannot swim.
- 21 five-year olds can swim.
- There are 30 six-year olds, 18 can swim.

1. $P(\text{can swim})$

2. $P(\text{four-year old} | \text{can't swim})$

3. $P(\text{can swim} | \text{six-year old})$

Apr 7-4:31 PM