

Practice 12-2

Conditional Probability

1. The table contains information about the 1205 employees at one business. Find each probability. Round to the nearest tenth of a percent.

Education and Salary of Employees

	Under \$20,000	\$20,000 to \$30,000	Over \$30,000
Less than high school	69	36	2
High school	112	98	14
Some college	102	193	143
College degree	13	178	245

- a. $P(\text{employee has less than a high school education})$
- b. $P(\text{employee earns under } \$20,000)$
- c. $P(\text{employee earns over } \$30,000 \text{ and has less than a high school education})$
- d. $P(\text{employee earns under } \$20,000 \text{ and has a college degree})$
- e. given that the employee has only a high school education, the probability that the employee earns over \$30,000
- f. given that the employee earns over \$30,000, the probability that the employee has only a high school education or less

2. High school students in one school chose their favorite leisure activity. Find each probability. Round to the nearest tenth of a percent.

Favorite Leisure Activities

	Sports	Hiking	Reading	Phoning	Shopping	Other
Female	39	48	85	62	71	29
Male	67	58	76	54	68	39

- a. $P(\text{sports} \mid \text{female})$
- b. $P(\text{female} \mid \text{sports})$
- c. $P(\text{reading} \mid \text{male})$
- d. $P(\text{male} \mid \text{reading})$
- e. $P(\text{hiking} \mid \text{female})$
- f. $P(\text{hiking} \mid \text{male})$
- g. $P(\text{male} \mid \text{shopping})$
- h. $P(\text{female} \mid \text{shopping})$

3. The senior class is 55% female, and 32% are females who play a competitive sport. Find the probability that a student plays a competitive sport, given that the student is female.

Draw a tree diagram. Find each probability.

- 4. A softball game has an 80% chance of being canceled for a light drizzle and a 30% chance of being canceled for a heavy fog when there is no drizzle. There is a 70% chance of heavy fog and a 30% chance of light drizzle.
 - a. Find the probability that the game will be canceled.
 - b. Find the probability there will be a light drizzle and the game will not be canceled.
- 5. The students of a high school are 51% males; 45% of the males and 49% of the females attend concerts.
 - a. Find the probability that a student attends concerts.
 - b. Find the probability that a student is a female and does not attend concerts.