

HW 8.1 & 8.2

1. The Waldo School Board asked eligible voters to evaluate the town's library service. Data are summarized in the following table:

	How Would You Rate Our Town's Library Services?							
	Good		Average		Poor		Do Not Use Library	
Age (in years)	Male	Female	Male	Female	Male	Female	Male	Female
18-25	10	8	5	7	5	5	17	18
26-40	30	28	25	30	20	30	20	20
41-65	30	32	26	21	15	10	5	10
66 and Older	21	25	8	15	2	10	2	5

- a. What is the probability that a randomly selected person who completed the survey rated the library as good?
- b. Imagine talking to a randomly selected male voter who had completed the survey. How do you think this person rated the library services? Explain your answer.
- c. Use the given data to construct a two-way table that summarizes the responses on gender and rating of the library services. Use the following template as your guide:

	Good	Average	Poor	Do Not Use	Total
Male					
Female					
Total					

- d. Based on your table, answer the following:
- A randomly selected person who completed the survey is male. What is the probability he rates the library services as good?
 - A randomly selected person who completed the survey is female. What is the probability she rates the library services as good?
- e. Based on your table, answer the following:
- A randomly selected person who completed the survey rated the library services as good. What is the probability this person is male?
 - A randomly selected person who completed the survey rated the library services as good. What is the probability this person is female?
- f. Do you think there is a difference in how male and female voters rated library services? Explain your answer.

3. Obedience School for Dogs is a small franchise that offers obedience classes for dogs. Some people think that larger dogs are easier to train and, therefore, should not be charged as much for the classes. To investigate this claim, dogs enrolled in the classes were classified as large (30 pounds or more) or small (under 30 pounds). The dogs were also classified by whether or not they passed the obedience class offered by the franchise. 45% of the dogs involved in the classes were large. 60% of the dogs passed the class. Records indicate that 40% of the dogs in the classes were small and passed the course.

g. Complete the following hypothetical 1000 two-way table:

	Passed the Course	Did Not Pass the Course	Total
Large Dogs			
Small Dogs			
Total			

- h. Estimate the probability that a dog selected at random from those enrolled in the classes passed the course.
- i. A dog was randomly selected from the dogs that completed the class. If the selected dog was a large dog, what is the probability this dog passed the course?
- j. A dog was randomly selected from the dogs that completed the class. If the selected dog is a small dog, what is the probability this dog passed the course?
- k. Do you think dog size and whether or not a dog passes the course are related?
- l. Do you think large dogs should get a discount? Explain your answer.

The *Monitoring the Future Study* is a major source of information on smoking, drinking and drug habits of American youth. Based on data collected from the 2011 survey, you will decide whether or not smoking is linked to gender or if there is a linkage between high school grades and alcohol consumption. The review questions will focus on data collected from the following three survey questions:

- I. On how many occasions (if any) have you had alcoholic beverages to drink – more than just a few sips during the last 30 days?
- II. Have you ever smoked cigarettes?
- III. Which of the following best describes your average grade so far in high school?

Questions 3 explores relationships between grades in high school and smoking. Responses to survey questions II and III have been organized into the table below. Round answers to the nearest thousandth.

		Smoking				
		Never	Once or twice	Occasionally/ not regularly	Regularly in past	Regularly now
Grades	D	46	22	23	12	25
	C-, C, or C+	926	436	323	123	285
	B-, B, or B+	3792	1275	769	330	489
	A- or A	3465	665	327	126	168

3. a. Add in the row and column for Totals, and calculate them.
- b. What proportion of students answering both questions had never smoked? Had smoked at least once?
- c. What proportion of students had average grades of A- or A and never smoked? Show the calculations.
- d. What proportion of A- or A students have never smoked? Show the calculations.
- e. What proportion of students' whose averages are C+ or below never smoked? Show the calculations.
- f. What proportion of students who are regular smokers had averages B- or better?
- g. What proportion of students who were regular smokers in the past had averages B- or better?
- h. What proportion of students who never smoked had averages B- or better?

4. One of these names is to be drawn from a hat. Determine each probability below (in a reduced fraction):

Mary Jenny Bob Marilyn Bill Jack Jerry Tina Connie Joe

a. P(3-letter name) =

b. P(4-letter name) = _____

c. P(name starting with B) = _____

d. P(name starting with T) = _____

e. P(7-letter name) = _____

f. P(name starting with S) = _____

g. P(name ending with Y) = _____

5. One of these cards will be drawn without looking. (Express answers as reduced fractions)

1 4 7 J S 9 1 2 M 5 4 J

a. P(2) =

b. P(5) = _____

c. P(J) = _____

d. P(a number) = _____

e. P(4) = _____

f. P(T) = _____

g. P(a letter) = _____

Answers

1a. $\frac{23}{44}$	1b. Answers will vary	1c. See Teacher	1d. $\frac{7}{11}$	1dii. $\frac{5}{11}$	1ei. $\frac{21}{46}$
1eii. $\frac{25}{46}$	1f. Answers will vary	2a. See Teacher	2b. $\frac{3}{5}$	2c. $\frac{4}{9}$	2d. $\frac{8}{11}$
2e. Answers will vary	2f. Answers will vary	3a. See Teacher	3b. 0.604	3c. 0.254	3d. 0.729
3e. 0.438	3f. 0.679	3g. 0.772	3h. 0.882	4a. $\frac{1}{5}$	4b. $\frac{2}{5}$
4c. $\frac{1}{5}$	4d. $\frac{1}{10}$	4e. $\frac{1}{10}$	4f. 0	4g. $\frac{3}{10}$	5a. $\frac{1}{12}$
5b. $\frac{1}{12}$	5c. $\frac{1}{6}$	5d. $\frac{2}{3}$	5e. $\frac{1}{6}$	5f. 0	5g. $\frac{1}{3}$