

Chapter 3 Homework Worksheet

Section 3.1

We will no longer complete problems 1 – 6 in section 3.1.

In the article, “Attitudes About Marijuana and Political Views” in *Psychological Reports*, 1973, pp. 1051 – 1054, the following marijuana usage level frequencies were reported:

Political Views	<i>A = Never</i>	<i>B = Rarely</i>	<i>C = Frequently</i>	Totals
<i>D = Liberal</i>	479	173	119	771
<i>E = Conservative</i>	214	47	15	276
<i>F = Other</i>	172	45	85	302
Totals	865	265	219	1349

Altogether, 1,349 people were surveyed. Please use the table above to estimate probabilities for problems 7 through 12, using relative frequencies.

7. $P(A) =$

8. $P(B) =$

9. $P(A \& B) =$

10. $P(D) =$

11. $P(A \& D) =$

12. $P(A \& F) =$

The following data were gathered by Mt. San Antonio College honors student Helentina Pang, regarding genders of sample members and whether respective members have ever been in a car accident.

Gender	$Y = Yes$	$N = No$
$F = Female$	15	15
$M = Male$	20	10

Please answer the following problems regarding the above sample data.

17. $P(Y) =$

19. $P(F) =$

21. $P(Y \& F) =$

23. $P(Y \& M) =$

25. $P(N \& F) =$

27. $P(N \& M) =$

Section 3.2

The table below is based on "Ignoring a covariate: An example of Simpson's Paradox" by Appleton, D.R. French, J.M. and Vanderpump, M.P (1996, American Statistician, 50, 340-341). In 1972-1994 a one-in-six survey of the electoral roll, largely concerned with thyroid disease and heart disease was carried out in Wichkham, a mixed urban and rural district near Newcastle upon Tyne, in the UK. Twenty years later, a follow-up study was conducted to see which study members were still alive.

Here are the results for a sample of randomly selected females aged 65 to 74. Assuming 7425 women were involved, the observed frequencies are as follows.

Smoking Status	$A = Dead$	$B = Alive$	Totals
$C = Smokers$	1305	315	1620
$D = Non-smokers$	4545	1260	5805
Totals	5850	1575	7425

Use the table above to answer questions **1** – **16**. Use the relative frequency approach.

1. $P(A) =$

9. $P(C|A) =$

2. $P(B) =$

10. $P(A|C) =$

3. $P(C) =$

11. $P(B \& D) =$

4. $P(D) =$

12. $P(B \text{ or } D) =$

6. $P(A \text{ or } B) =$

14. $P(B|D) =$

7. $P(A \& C) =$

15. $P(\bar{A}) =$

8. $P(A \text{ or } C) =$

16. $P(\bar{D}) =$

The following data give game rating preferences by gender for randomly selected college students. These data were gathered by Sean Meshkin, honors student at Mt. San Antonio College.

<i>Gender</i>	<i>Rated-E</i>	<i>Rated-T</i>	<i>Rated-M</i>
<i>L = Male</i>	7	12	15
<i>F = Female</i>	5	17	5

Please answer the following problems regarding the above data.

19. $P(M \& L) =$

21. $P(M|L) =$

20. $P(M \text{ or } L) =$

22. $P(L|M) =$

23. $P(L \& F) =$

The following give frequencies of grades by number of units attempted for randomly selected sample members. These data were gathered by Lily Bai, honors student at Mt. San Antonio College.

<i>Units Attempted</i>	<i>Grade of A</i>	<i>Grade of B</i>	<i>C or Lower</i>
<i>D = 0 – 12 Units</i>	1	3	1
<i>E = 12 – 13 Units</i>	7	10	4
<i>F = More than 16 Units</i>	7	3	1

Please answer the following problems regarding the above data.

29. $P(A|F) =$

34. $P(A \text{ or } F) =$

32. $P(C|D) =$

37. $P(E) =$