

2.1 List the elements of each of the following sample spaces:

- (a) the set of integers between 1 and 50 divisible by 8;
- (b) the set $S = \{x \mid x^2 + 4x - 5 = 0\}$;

2.3 Which of the following events are equal?

- (a) $A = \{1, 3\}$;
- (b) $B = \{x \mid x \text{ is a number on a die}\}$;
- (c) $C = \{x \mid x^2 - 4x + 3 = 0\}$;
- (d) $D = \{x \mid x \text{ is the number of heads when six coins are tossed}\}$.

2.14 If $S = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$ and $A = \{0, 2, 4, 6, 8\}$, $B = \{1, 3, 5, 7, 9\}$, $C = \{2, 3, 4, 5\}$, and $D = \{1, 6, 7\}$, list the elements of the sets corresponding to the following events:

- (a) $A \cup C$;
- (b) $A \cap B$;
- (c) C' ;
- (d) $(C' \cap D) \cup B$;
- (e) $(S \cap C)'$;
- (f) $A \cap C \cap D'$.

2.63 According to *Consumer Digest* (July/August 1996), the probable location of personal computers (PC) in the home is as follows:

Adult bedroom:	0.03
Child bedroom:	0.15
Other bedroom:	0.14
Office or den:	0.40
Other rooms:	0.28

- (a) What is the probability that a PC is in a bedroom?
- (b) What is the probability that it is not in a bedroom?
- (c) Suppose a household is selected at random from households with a PC; in what room would you expect to find a PC?

2.58 A pair of fair dice is tossed. Find the probability of getting

- (a) a total of 8;
- (b) at most a total of 5.

2.76 In an experiment to study the relationship of hypertension and smoking habits, the following data are collected for 180 individuals:

	Nonsmokers	Moderate Smokers	Heavy Smokers
H	21	36	30
NH	48	26	19

where H and NH in the table stand for *Hypertension* and *Nonhypertension*, respectively. If one of these individuals is selected at random, find the probability that the person is

- (a) experiencing hypertension, given that the person is a heavy smoker;
- (b) a nonsmoker, given that the person is experiencing no hypertension.

2.110 The probability that a patient recovers from a delicate heart operation is 0.8. What is the probability that

- (a) exactly 2 of the next 3 patients who have this operation survive?
- (b) all of the next 3 patients who have this operation survive?