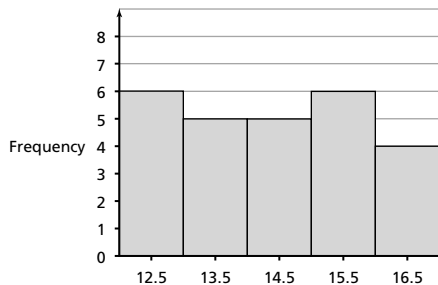


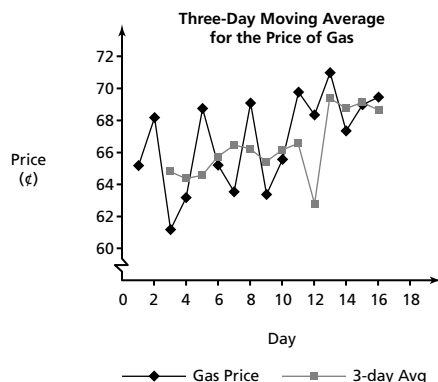
5. (a) Antonia ($\bar{x} = 12.9$, $\sigma = 2.29$), Jamil ($\bar{x} = 12.4$, $\sigma = 2.8$); Antonia is more effective.
 (b) Antonia
 6. (a) 84.9% (b) 26.4%

Chapter 3 Test, page 200

1.



2. (a) Min: mean: 146.18, median: 140, mode: NA; Jan: mean: 219.64, median: 222, mode: NA; Gigi: mean: 189.45, median: 177, mode: NA
 (b) Min: $Q1 = 130$, $Q2 = 140$, $Q3 = 174$, $IQR = 44$, standard deviation: 25.07; Jan: $Q1 = 203$, $Q2 = 222$, $Q3 = 243$, $IQR = 40$, standard deviation: 27.95; Gigi: $Q1 = 160$, $Q2 = 177$, $Q3 = 212$, $IQR = 52$, standard deviation: 28.27
 (c) Min: 6, 11, 11; Jan: 7, 10, 11; Gigi: 9, 11, 11
 3. Marnie can assume donations will be within 3 standard deviations of the mean; \$30–\$120
 4. 21.19%
 5. 6.11 years
 6.



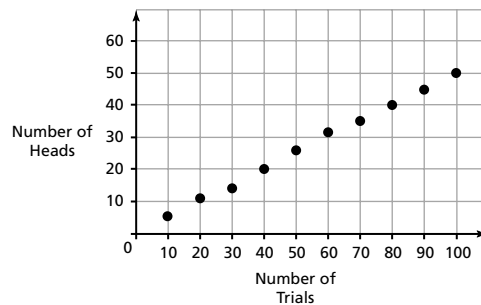
7. Sakic (178.0), Weight (133.2), Thornton (129.4), Iginla (114.4), Kariya (104.0)

Chapter 4

4.1 Exercises, page 209

1. (a) Toss a coin 10 times and record the number of times 7 or more heads occurs. Answers may vary; for example, 0.172.
 (b) Roll a die and record the number of times 1 occurs. Answers may vary; for example, 0.167.
 2. (a) Answers may vary; for example, 0.0769.
 (b) (i) the particular card chosen
 (ii) Answers may vary; for example, 50.
 (iii) drawing a queen from the deck

3. (b) (i) Answers may vary; for example, 10; 5; 0.5; 20; 11; 0.55; 30; 15; 0.5, ..., 100; 50; 0.5



- (ii) tossing a coin
 (iii) the coin turns up heads
 (iv) The probability gets closer to 0.5.
 4. (a) Answers may vary; for example, 0.501. Answer depends on the length of the shaft of the tack, roundness of the top, and diameter of the shaft.
 (b) 0.499 (c) 251
 5. (a) Toss 10 coins and record the number of times at least 5 heads occurs and the total number of trials.
 (c) Answers may vary; for example, 0.6230.
 6. (a) Answers may vary; for example, 0.5.
 (b) Answers may vary; for example, 0.0619.
 7. (a) Answers may vary; for example, 0.0769.
 (b) Answers may vary; for example, 0.0010.
 8. Make a spinner with 5 equal sectors of angle 72° , labelled A, B, C, D, E. Spin 5 times, recording the outcome and compare to the correct given answers.
 9. (a) Let 0 represent a head and let 1 represent a tail.
 (b) $\frac{1}{9}$
 (c) Increase the number of trials in the experiment.
 (d) Let 0 represent a male and let 1 represent a female.
 (e) You can do more trials if needed.
 10. Make a spinner with sector angles 72° and 288° . The larger sector represents a field goal. Answers may vary; for example, 0.0102.
 11. Make a spinner with sector angles 36° and 324° . The smaller sector represents a defective keyboard. Answers may vary; for example, 0.0204.
 12. (a) Make a spinner with sector angles 108° and 252° . The larger sector represents a seat belt wearer. Answers may vary; for example, 0.0306.
 (b) no
 13. Roll a die and record how many rolls it takes to get all 6 numbers. Create a spreadsheet of random integers 1 to 6. How many rows until you have all numbers 1 to 6? Answers may vary; for example, 23.
 14. Create a spreadsheet of 3 random integers 1 to 3. Let 1 represent a green light. How many rows have no 1? Answers may vary; for example, 0.1406.

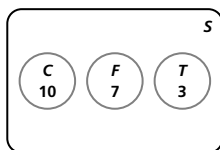
4.2 Exercises, page 218

1. (a) 7 of diamonds
 (b) ace of spades, ace of hearts, ace of clubs, ace of diamonds
 (c) 2, 3, 4, 5, 6, 7, 8, 9, 10 of clubs
 (d) 2, 4, 6, 8, 10 of clubs, diamonds, hearts, or spades
 2. (a) only (a)
 (b) (a) $\frac{1}{52}$ (b) $\frac{1}{13}$ (c) $\frac{9}{52}$ (d) $\frac{5}{13}$
 3. (a) 5 (b) $\frac{3}{5}$ (c) $\frac{2}{5}$ (d) 0

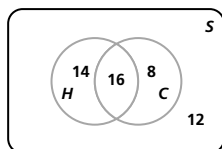
4. (a) $\frac{1}{27}$ (b) $\frac{1}{54}$ (c) $\frac{2}{27}$
 (d) $\frac{1}{2}$ (e) $\frac{2}{3}$ (f) $\frac{1}{18}$
5. (a) $\frac{1}{2}$ (b) $\frac{1}{6}$ (c) $\frac{1}{2}$ (d) $\frac{1}{26}$ (e) $\frac{10}{13}$
6. (a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) $\frac{1}{4}$
7. (a) $\frac{1}{4}$ (b) $\frac{3}{4}$
8. (a) $\frac{1}{11}$ (b) $\frac{2}{11}$ (c) $\frac{4}{11}$
9. (a) $\frac{1}{5}$ (b) $\frac{1}{5}$
 (c) Odd; there are 38 odd and only 37 even numbers.
10. (a) $\frac{1}{8}$ (b) $\frac{7}{8}$ (c) $\frac{3}{8}$
11. $\frac{59}{360}$
12. (a) 36 (b) $\frac{1}{6}$ (c) $\frac{5}{6}$
13. $\frac{1}{10}$
14. 6
15. People do not choose randomly. The outside numbers are chosen less often and the higher number 3 is selected more often from the two numbers left.

4.3 Exercises, page 228

1. (a) {6, 9} (b) {2, 5, 6, 9, 10, 12}
 (c) {9, 10} (d) {2, 4, 6, 9, 10, 12}
 (e) $\emptyset$ (f) {9}
2. (a) 0; mutually exclusive
 (b) 0.75; not mutually exclusive
 (c) 0.6; mutually exclusive
3. (a) 0 (b) 0.5 (c) 0.5
4. $\frac{11}{12}$
5. $\frac{6}{7}$
6. (a)



- (b) (i) $\frac{1}{2}$ (ii) $\frac{3}{20}$ (iii) $\frac{13}{20}$
7. 0.8
8. (a)

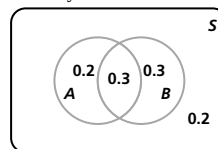


- (b) (i) $\frac{7}{25}$ (ii) $\frac{19}{25}$ (iii) $\frac{13}{25}$
9. $\frac{2}{13}$
10. $\frac{4}{13}$
11. $\frac{23}{36}$
12. 0.5
14. (a) $\frac{7}{45}$ (b) $\frac{8}{9}$ (c) $\frac{26}{45}$
15. $\frac{9}{52}$

4.4 Exercises, page 235

1. (a) $\frac{12}{19}$ (b) $\frac{3}{8}$
2. $\frac{2}{9}$

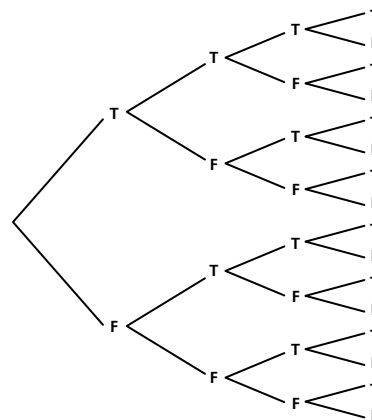
3. $\frac{1}{3}$
4. $\frac{1}{17}$
5. (a) $\frac{61}{250}$ (b) $\frac{11}{750}$
6. $\frac{3}{28}$
7. 0.48
8. (a) $\frac{29}{50}$ (b) $\frac{23}{50}$ (c) $\frac{1}{50}$ (d) $\frac{7}{50}$
9. (a) $\frac{4}{1431}$ (b) $\frac{2}{159}$ (c) $\frac{2}{477}$
 (d) $\frac{13}{53}$ (e) $\frac{16}{477}$ (f) $\frac{52}{477}$
10. (a) 1, 2; 1, 3; 1, 4; 2, 3; 2, 4; 3, 4
 (b) (i) $\frac{5}{6}$ (ii) $\frac{1}{6}$ (iii) $\frac{1}{6}$ (iv) $\frac{1}{3}$ (v) $\frac{2}{3}$
11. (a) $\frac{1}{2}$ (b) $\frac{3}{5}$
12. (a) Region C satisfies both A and B conditions, so events are not mutually exclusive.



- (b) You get the same answers for the probabilities, so the condition has no influence.
13. (a) 0.8 (b) 0.7 (c) 0.56 (d) 0.44
14. (a) 0.32 (b) 0.21
15. $\frac{1}{2}$
16. (a) 2% (b) 8%

4.5 Exercises, page 245

1. 24
2. (a)



- (b) $\frac{1}{16}$ (c) $\frac{1}{4}$
3. (a) 7D 7D (b) AS 7D
 (c) 2C2C, 2C3C, 2C4C, ..., 10C9C, 10C10C
 (d) AS2C, AS4C, AS6C, ..., AD8C, AD10C
4. (a) 36
 (b) 1 red, 1 white is the only outcome
 (c) 1 red, 2 white; 2 red, 1 white
 (d), (e) 2: (1, 1); $\frac{1}{36}$
 3: (1, 2), (2, 1); $\frac{1}{18}$
 4: (1, 3), (2, 2), (3, 1); $\frac{1}{12}$
 5: (1, 4), (2, 3), (3, 2), (4, 1); $\frac{1}{9}$