Chapter 2 BLM Answers

BLM 2–1 Prerequisite Skills

1. a) 0.75 **b)** 0.875
c) 0.8 **d)** 0.35

2. a) 0.6333 **b)** 0.4694
c) 0.6111 **d)** 0.1833

3. a) $\frac{13}{20}$ **b)** $\frac{41}{50}$ **c)** $\frac{7}{50}$
d) $\frac{1}{4}$ **e)** $\frac{2}{5}$ **f)** $\frac{7}{20}$

4. a) $\frac{19}{7}$ **b)** $\frac{1}{12}$ **c)** $\frac{2}{5}$
d) $\frac{1}{3}$ **e)** $\frac{3}{34}$

5. a) 28 students **b)** $\frac{1}{2}$
c) Yes. Half the cards in the deck are red.

6. a) 41 students **b)** Alternative
c) 34% **d)** $\frac{13}{41}$

BLM 2–3 Section 2.1 Probability Experiments

1. a) $\frac{3}{5}$ **b)** $\frac{2}{5}$, 0.40, 40%

2. a) $\frac{9}{25}$ **b)** $\frac{16}{25}$; $1 - \frac{9}{25}$, or $\frac{32}{50}$

3. A successful outcome is one that matches the desired outcome.

4. a) 200 times **b)** $\frac{3}{20}$, 0.15, 15%
c) $\frac{17}{50}$ **d)** $\frac{49}{100}$
e) Yes. The result represents all black cards, and 49% is close to 50%.

5. a) $\frac{8}{15}$, 0.533, 53.3%
b) No. All outcomes are equally likely, so the answer should be closer to 16.7%.

6. a) No, only 1.25% are defective.
b) 30 items

7. 2500 deer

BLM 2–4 Section 2.2 Theoretical Probability

1. $\frac{1}{25}$

2. a) $\frac{1}{4}$ **b)** $\frac{1}{4}$ **c)** $\frac{1}{2}$

3. a) $\frac{3}{26}$ **b)** $\frac{1}{13}$ **c)** $\frac{5}{13}$
d) $\frac{5}{52}$ **e)** $\frac{1}{26}$

4. a) $\frac{1}{6}$ **b)** $\frac{1}{9}$ **c)** $\frac{11}{36}$
d) $\frac{1}{6}$ **e)** $\frac{5}{6}$

5. 1; yes; the two outcomes represent all possible outcomes for rolling 2 dice so their sum should be 1.

6. a) There are no red spades so it is an impossible outcome, probability 0.
b) All the possible outcomes are given, probability 1.

7. a) $\frac{5}{31}$ **b)** $\frac{59}{124}$ **c)** $\frac{34}{79}$

8. a) $\frac{1}{10}$ **b)** $\frac{9}{10}$
c) Yes, the two outcomes represent all possible outcomes.

BLM 2–5 Section 2.3 Compare Experimental and Theoretical Probabilities

1. a) $\frac{3}{20}$ **b)** $\frac{15}{16}$
c) No. The dart player is aiming to get the highest score (18, 19, or 20), not to hit the board randomly.

2. a) $\frac{5}{12}$ **b)** $\frac{1}{6}$
c) It should approach $\frac{1}{6}$.

3. a) red: $\frac{23}{57}$; orange: $\frac{20}{57}$; purple: $\frac{14}{57}$

b) red: $\frac{5}{14}$; orange: $\frac{3}{14}$; purple: $\frac{3}{7}$

c) 1; 1; they add to 1. The three outcomes represent all possible outcomes for both types of probability.

4. a) $\frac{1}{37}$ **b)** 8 times, 16 times

c) $\frac{1}{20}$ **d)** 2 times

5. a) The theoretical probability of landing on black or red is $\frac{18}{37}$, which is less than $\frac{1}{2}$.

b) 360 spins

c) You would land on black 10 more times.

6. a) experimental: heads $\frac{1}{4}$, tails $\frac{3}{4}$; theoretical: $\frac{1}{2}$ heads or tails.

b) There are not enough trials in the experiment to draw accurate conclusions.

7. a) Use randInt (0, 1, 25) on a graphing calculator, and count 0 as heads and 1 as tails.

b) Answers may vary.

8. a) 1: $\frac{3}{100}$; 2: $\frac{11}{50}$; 3: $\frac{3}{50}$; 4: $\frac{9}{25}$; 5: $\frac{4}{25}$; 6: $\frac{17}{100}$

b) $\frac{1}{6}$ for every outcome.

c) Possibly. The numbers 2 and 4 were rolled almost 60% of the time.

d) Conduct more trials to see if the experimental probability remains different from the theoretical probability.

9. a) $\frac{1}{5}$ **b)** 3 answers

BLM 2–7 Section 2.4 Interpret Information Involving Probability

1. a) cereal: $\frac{2}{25}$; fruit: $\frac{7}{25}$; chips: $\frac{21}{100}$; cookies: $\frac{17}{100}$; ice cream: $\frac{13}{50}$

b) cereal: 96; fruit: 336; chips: 252; cookies: 204; ice cream: 312

2. a) $\frac{3}{5}$ **b)** $\frac{2}{5}$

3. a) 18 shots **b)** 1440 shots

c) Assume his foul shot record in the 4 games will continue.

4. a) $\frac{38}{239}$ **b)** $\frac{106}{239}$ **c)** $\frac{219}{239}$

5. a) 75 points **b)** 150 points

c) Assume the team has the same record as they did in the first half of the season.

6. a) 9 wins, 3 losses

b) 21 wins, 7 losses

7. a) 27 points

b) 24 points

c) 6 points

d) The point system from part a).

8. a) $\frac{7}{10}$ **b)** 17.16% **c)** 15 students

BLM 2–10 Chapter 2 Review

1 a) $\frac{32}{65}$, 0.492, 49.2% **b)** $\frac{33}{65}$

c) Yes. The two outcomes represent the total possible outcomes.

2. a) 176 times **b)** 352 tosses

c) 202 heads **d)** $\frac{101}{176}$, 53.4%

3. a) $\frac{19}{27}$

b) No. Half the deck is red, so the answer should be closer to $\frac{27}{54}$.

4. a) $\frac{5}{12}$, $\frac{1}{4}$, $\frac{1}{3}$

b) 1; the three outcomes represent all the possible outcomes.

5. a) $\frac{2}{9}$ **b)** $\frac{1}{32}$ **c)** $\frac{3}{26}$

6. a) $\frac{1}{5}$ **b)** $\frac{18}{25}$ **c)** $\frac{10}{23}$

7. Maybe. The theoretical probability would be 6 or 7 out of 40, but experimental probability can be very different. More trials are needed. 40 rolls are not enough to determine if the die is "loaded".

8. a) $\frac{11}{37}$ **b)** 119 times

c) 119 is close to 125, so the experimental and theoretical probabilities are similar.

9. a) $\frac{5}{13}$ **b)** 29 times

c) 21 is less than 29, so the experimental probability does not match the theoretical probability.

10. a) 4 shots **b)** 456 shots

c) Assume her three-point shot record in the 5 games will continue.

11. a) 80.5%

b) 9 or 10 passes

c) He might catch or drop more passes than his season record.

BLM 2–11 Chapter 2 Practice Test

1. T

2. F

3. T

4. T

5. 5000 penguins

6. 1. Successful and unsuccessful trials represent all possible outcomes of an experiment.

7. a) $\frac{7}{30}$ **b)** $\frac{4}{15}$ **c)** $\frac{1}{4}$

8. The actual probability of an event, given that all outcomes are equally likely.

9. a) $\frac{3}{7}$ **b)** $\frac{1}{14}$

c) $\frac{2}{7}$ **d)** 0

10. a) 1: $\frac{11}{120}$; 2: $\frac{23}{120}$; 3: $\frac{1}{24}$;

4: $\frac{1}{6}$; 5: $\frac{17}{60}$; 6: $\frac{9}{40}$

b) $\frac{1}{6}$ for every outcome.

c) Yes, the outcome for 4.

d) The experimental probabilities should approach the theoretical probability.

11. a) 4 correct **b)** Answers may vary.

12. a) 18 points **b)** 48 points

c) Assume the team has the same record as they did in the first 30 games.

d) Unlikely. The team will try to improve their record.

13. a) 80% **b)** $\frac{1}{5}$

c) 3200 yes, 800 no

d) 20 000 yes, 5000 no

e) Maybe. The sample is 16% of total dentists. It depends if the 16% is a representative sample of all the dentists in the country.

BLM 2–12 Chapter 2 Test

1. C

2. B

3. A

4. A

5. T

6. T

7. T

8. T

9. $\frac{4}{5}$

10. $\frac{8}{9}$ **b)** $\frac{13}{18}$ **c)** $\frac{1}{6}$ **d)** $\frac{11}{36}$

11. $\frac{3}{50}$

12. a) $\frac{1}{7}$ **b)** $\frac{2}{7}$ **c)** $\frac{3}{5}$

13. a) 600 people, 400 people, 600 people

b) No, probably not. 1600 people are probably too few to be a representative sample of the station's listening audience.

14. a) $\frac{1}{8}$ **b)** 37.5% **c)** 40 000 people

d) Assume having a heart attack does not mean you have heart disease.