

MathLinks 8 Practice and Homework Book

Chapter 11 Answers

11 Get Ready

- a) 0.8, 80% b) $\frac{2}{3}$, $66.\overline{6}\%$
c) $0.\overline{36}$ or 0.3636..., 36% or $36.\overline{36}\%$
d) $\frac{1}{3}$, $0.\overline{3}$, or 0.3333...
- $\frac{1}{3}$, $0.\overline{3}$, $33.\overline{3}\%$
- a)

	1	2	3	4	5	6
A	A, 1	A, 2	A, 3	A, 4	A, 5	A, 6
B	B, 1	B, 2	B, 3	B, 4	B, 5	B, 6

- b) (A, 1), (A, 2), (A, 3), (A, 4), (A, 5),
(A, 6), (B, 1), (B, 2), (B, 3), (B, 4),
(B, 5), (B, 6)

c) $\frac{4}{12}$ or $\frac{1}{3}$

4. $\frac{2}{3} \times \frac{1}{2} = \frac{1}{3}$

5. $\frac{1}{2}$

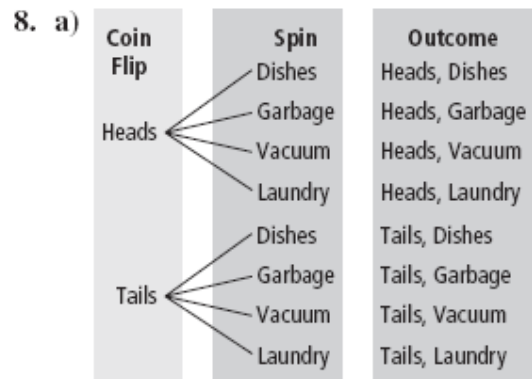
11.1 Determining Probabilities Using Tree Diagrams and Tables

- d) probabilities
- e) $P(A \text{ then } B)$
- a) probability
- c) $P(A, B)$
- b) tree diagrams
- Outcomes: (H, 1), (H, 2), (H, 3), (H, 4),
(H, 5), (H, 6), (T, 1), (T, 2), (T, 3), (T, 4),
(T, 5), (T, 6)
a) $\frac{1}{12}$ b) $\frac{3}{12}$ or $\frac{1}{4}$ c) 0

7. a)

	1	2	3	4
3	3, 1	3, 2	3, 3	3, 4
6	6, 1	6, 2	6, 3	6, 4
9	9, 1	9, 2	9, 3	9, 4

b) $\frac{6}{12}$ or $\frac{1}{2}$

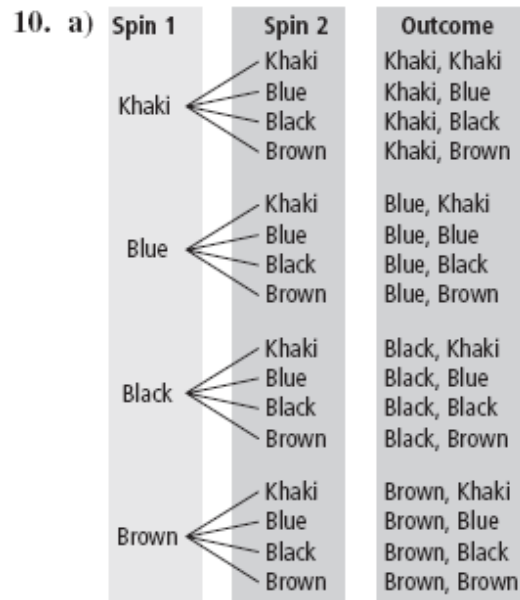


b) $\frac{1}{8}$

9. a)

	7	4	1	3	4	9
7	7, 7	7, 4	7, 1	7, 3	7, 4	7, 9
4	4, 7	4, 4	4, 1	4, 3	4, 4	4, 9
1	1, 7	1, 4	1, 1	1, 3	1, 4	1, 9
3	3, 7	3, 4	3, 1	3, 3	3, 4	3, 9
4	4, 7	4, 4	4, 1	4, 3	4, 4	4, 9
9	9, 7	9, 4	9, 1	9, 3	9, 4	9, 9

b) $\frac{1}{36}$



b) $\frac{4}{16}$ or $\frac{1}{4}$

11.2 Outcomes of Independent Events

1. Order may vary.

a) tree diagram b) table c) multiplication

2. a)

Yogurt	Fruit	Outcome
Strawberry	Apple	Strawberry, Apple
	Orange	Strawberry, Orange
	Grapes	Strawberry, Grapes
	Banana	Strawberry, Banana
Peach	Apple	Peach, Apple
	Orange	Peach, Orange
	Grapes	Peach, Grapes
	Banana	Peach, Banana
Raspberry	Apple	Raspberry, Apple
	Orange	Raspberry, Orange
	Grapes	Raspberry, Grapes
	Banana	Raspberry, Banana

b) 12 c) $3 \times 4 = 12$ 3. a) $4 \times 3 = 12$

b) Methods may vary. Example:

Spinner 1	Spinner 2	Outcome
1	1	1, 1
	2	1, 2
	3	1, 3
2	1	2, 1
	2	2, 2
	3	2, 3
3	1	3, 1
	2	3, 2
	3	3, 3
4	1	4, 1
	2	4, 2
	3	4, 3

4. a)

Crust	Meat	Toppings	Outcome
Thin	Pepperoni	Mushroom	Thin, Pepperoni, Mushroom
		Pineapple	Thin, Pepperoni, Pineapple
		Green Pepper	Thin, Pepperoni, Green Pepper
	Ham	Extra Cheese	Thin, Pepperoni, Extra Cheese
		Mushroom	Thin, Ham, Mushroom
		Pineapple	Thin, Ham, Pineapple
Regular	Pepperoni	Green Pepper	Thin, Ham, Green Pepper
		Extra Cheese	Thin, Ham, Extra Cheese
		Mushroom	Regular, Pepperoni, Mushroom
	Ham	Pineapple	Regular, Pepperoni, Pineapple
		Green Pepper	Regular, Pepperoni, Green Pepper
		Extra Cheese	Regular, Pepperoni, Extra Cheese
Stuffed	Pepperoni	Mushroom	Regular, Ham, Mushroom
		Pineapple	Regular, Ham, Pineapple
		Green Pepper	Regular, Ham, Green Pepper
	Ham	Extra Cheese	Regular, Ham, Extra Cheese
		Mushroom	Stuffed, Pepperoni, Mushroom
		Pineapple	Stuffed, Pepperoni, Pineapple
		Green Pepper	Stuffed, Pepperoni, Green Pepper
		Extra Cheese	Stuffed, Pepperoni, Extra Cheese
		Mushroom	Stuffed, Ham, Mushroom
		Pineapple	Stuffed, Ham, Pineapple
		Green Pepper	Stuffed, Ham, Green Pepper
		Extra Cheese	Stuffed, Ham, Extra Cheese

b) $3 \times 2 \times 4 = 24$ c) $3 \times 2 \times 3 = 18$

5. a)

Coin	Spinner	Die	Outcome
Heads	Green	1	H, G, 1
		2	H, G, 2
		3	H, G, 3
		4	H, G, 4
		5	H, G, 5
		6	H, G, 6
	Yellow	1	H, Y, 1
		2	H, Y, 2
		3	H, Y, 3
		4	H, Y, 4
		5	H, Y, 5
		6	H, Y, 6
	Blue	1	H, B, 1
		2	H, B, 2
		3	H, B, 3
		4	H, B, 4
		5	H, B, 5
		6	H, B, 6
Tails	Green	1	T, G, 1
		2	T, G, 2
		3	T, G, 3
		4	T, G, 4
		5	T, G, 5
		6	T, G, 6
	Yellow	1	T, Y, 1
		2	T, Y, 2
		3	T, Y, 3
		4	T, Y, 4
		5	T, Y, 5
		6	T, Y, 6
	Blue	1	T, B, 1
		2	T, B, 2
		3	T, B, 3
		4	T, B, 4
		5	T, B, 5
		6	T, B, 6

Multiplication, $2 \times 3 \times 6 = 36$

b) 36

6. a) Answers may vary. Example: Andre is taking a trip and has the following options. He can fly or take the train; he can leave on Monday, Tuesday, Wednesday, Thursday, or Friday; and he can choose an economy, regular, or first class fare. If he selects one option from each category, how many combinations are possible for his trip?

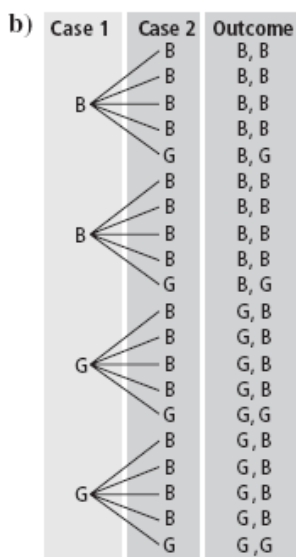
b) Answers may vary, based on question.

11.3 Determining Probabilities Using Fractions

1. a) multiplying, success
b) multiplying, tree diagrams, tables
c) simulation
d) results, experimental
2. a) Methods may vary. Example:

	Purple	Red	Orange
1	1, P	1, R	1, O
2	2, P	2, R	2, O
3	3, P	3, R	3, O
4	4, P	4, R	4, O

- b) $\frac{1}{12}$
c) $P(4, P) = \frac{1}{4} \times \frac{1}{3} = \frac{1}{12}$
3. a) $P(\text{two gray pencils}) = \frac{2}{20}$ or $\frac{1}{10}$



4. a) Answers may vary. Example: I used a four-section spinner marked A, B, C, and D for the classes and pulled the words foyer, library, hallway, gymnasium, cafeteria, and office from a bag. I used a table to record my 20 trials. Experimental probability $P(8C, \text{foyer}) = \frac{1}{20}$ or 5%

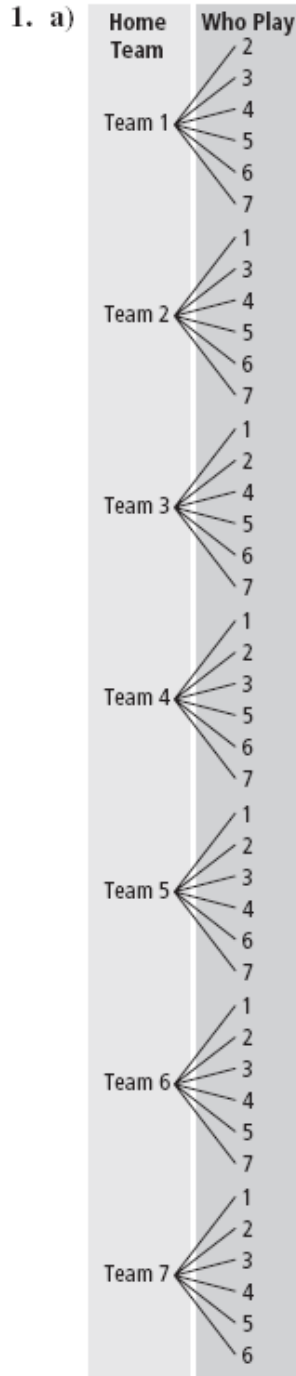
	F	L	H	G	C	O
8A	✓		✓	✓✓	✓	
8B		✓	✓		✓	
8C	✓		✓	✓	✓✓	✓
8D	✓	✓✓	✓		✓	✓

- b) Theoretical probability
 $P(8C, \text{foyer}) = \frac{1}{4} \times \frac{1}{6} = \frac{1}{24}$ or 4.17%
- c) Answers may vary depending on the results of the simulation. In this example, the theoretical probability is lower than the experimental probability.
5. a) $P(\text{both shots}) = 15\%$
b) Answers may vary. Example: I considered Greg's statistics and used two spinners. Spinner A represents the first shot. It has 10 equally-sized sectors. I shaded six of them. Spinner B represents the second shot. Spinner B has four equally-sized sectors. I shaded one of these sectors. The shaded sections are the shots he makes. I spun spinner A and then spin spinner B. I repeated this 25 times and recorded the results. Spinner A and spinner B must both land on the shaded part for Greg to make both shots.

Makes Both Shot	Misses One or Both Shots
✓✓✓✓✓✓	✓✓✓✓✓✓✓✓ ✓✓✓✓✓✓✓✓ ✓✓✓✓

- $P(\text{both shots}) = \frac{5}{25} = \frac{1}{5}$ or 20%
- c) Answers may vary, depending on the results of the simulation. In this example, the experimental probability is higher than the theoretical probability.

11 Link It Together



b) 42

c) $7 \text{ teams} \times 6 \text{ games each} = 42 \text{ games}$

2. a) Answers may vary. Example: I assumed that each team had an equal chance of winning, so I used a two-section spinner

marked Win and Lose. The first 6 spins were for Team 1, the next 6 spins for Team 2, and so on.

	Win	Lose
1	✓✓✓✓	✓✓✓✓
2	✓✓	✓✓✓✓✓
3	✓✓✓✓✓	✓✓
4	✓✓✓✓	✓✓✓✓
5	✓✓✓✓	✓✓✓✓
6	✓✓	✓✓✓✓✓
7	✓	✓✓✓✓✓✓

- b) Answers may vary, depending on the results of the simulation. According to the simulation, team 3 will win four games.

11 Vocabulary Link

- b) favourable outcome
- f) simulation
- c) independent
- e) sample space
- a) experimental
- d) probability
- g) theoretical

