e) $\frac{28}{100}$ or $\frac{7}{25}$; 0.28; 28%

f) $\frac{40}{100}$ or $\frac{2}{5}$; 0.40; 40%

2. a) 46% **b)** 38% **c)** 48% **d)** 40%
e) 80% **f)** 75%

3. a) 0.21, 0.74, 0.98, 0.03
b) 21 : 100, 74 : 100, 98 : 100, 3 : 100

4. a) 1 : 4 **b)** $\frac{3}{5}$ **c)** 1 : 5, 0.2

d) $\frac{3}{10}$, 30% **e)** 0.41, 41%

f) 9 : 50, 18%

g) $\frac{23}{100}$, 23 : 100, 0.23 **h)** $\frac{6}{8}$ or $\frac{3}{4}$, 0.75, 75%

5. a) 100%, 84%, 64%, 41%, 2%
b) 114%, 35%, 14%, 7%, 3%
c) 0.9, 74%, 0.5, 0.32, 19%

d) 88%, 56%, $\frac{45}{100}$, $\frac{2}{100}$

e) 85%, 0.81, 44%, $\frac{1}{4}$, $\frac{2}{10}$

f) 91%, 72%, $\frac{8}{20}$, $\frac{26}{100}$, 0.04

6. 25%
7. 20%
8. 15%

2.6 Solving Percent Problems

1. a) 30 **b)** 10 **c)** 6 **d)** 3.6
e) 67.5 **f)** 12

2. a) 300 **b)** 150 **c)** 70 **d)** 750
e) 800 **f)** 40

3. 28%
4. 106%
5. a) $16.00, $18.00, $17.25
b) Able Audio
6. 40, 64,16
7. 585 people
8. a) 12 matches **b)** 4 matches
9. 30%
10. a) $3.00, $27.00 **b)** 4.95, $10.05
c) 22.50, $22.50 **d)** 2.50, $47.50
e) $14.70, $83.30 **f)** $16.50, $5.50
11. a) 70% **b)** $175 **c)** $52.50

2.7 Decimal Multiplication

1. a) 0.15 **b)** 0.54
2. a) 0.14 **b)** 0.48 **c)** 1.55 **d)** 0.096
3. 41.25
4. $3.15

2.8 Decimal Division

1. a) 13 **b)** 12
2. a) 4 **b)** 33 **c)** 4.16 **d)** 9.2
3. a) 30 flags **b)** 5 flags **c)** 16 flags
4. 12.5 h

Test Yourself

1. a) 40 : 60 **b)** $\frac{2}{5}$ **c)** 60%

2. (a), (c), and (d) are equivalent
3. a) 4 **b)** 6 **c)** 15 **d)** 4
e) 1 **f)** 8 **g)** 3 **h)** 30
4. 8 min
5. $12/h, $8.50/h, $10/h, $7.75/h
6. 1350 people
7. a) 110 **b)** 10 **c)** 60 **d)** 20%
e) 140 **f)** 22
8. a) 25% **b)** 75 dogs
9. a) 5.28 **b)** 0.015 **c)** 1.98 **d)** 4
e) 5 **f)** 3.90
10. 0.96 (Romona), 0.87 (Miguel), 0.79 (Paul), 0.75 (Fawn)
11. 336 people
12. a) 180 cm by 90 cm **b)** 150 cm
c) 150 cm by 240 cm **d)** 210 cm

Chapter 3

3.1 Collecting Data

1. primary data
2. a) 15% chose pizza, 50% chose hot dogs, 30% chose hamburgers, 5% chose sandwiches
b) hot dogs and hamburgers
3. a) 70% chose apple juice, 25% chose grape juice, 5% chose orange juice
b) apple juice

3.2 Avoiding Bias in Data Collection

1. a) ii **b)** ii **c)** i
2. a) What is your favourite type of cereal? Or, which of the following cereals do you prefer? (with a list provided)
b) What type of music do you listen to?

3.3 Using a Database

1. a) a field **b)** a record
2. Number in store
3. a) Sale price **b)** $20 for jeans
c) $75 for black sweater

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4. the black sweater
5. original price

3.4 Using a Spreadsheet

1. **a)** $49.99 **b)** 25
2. **a)** $12.95
   b) the number of items
   c) the record for the shorts
3. $9.95 × 20 = $199.00
4. B3*C3 and B4*C4
5. sum(D2:D5)

3.5 Frequency Tables and Stem-and-Leaf Plots

1. **a)** 35 people **b)** January
2. **a)** 99 **b)** 51 **c)** 16 people
   d) 10 people
3.

Examination Mark	
Interval	**Frequency**
0–10	0
11–20	0
21–30	0
31–40	0
41–50	0
51–60	3
61–70	4
71–80	6
81–90	8
91–100	6

4. **a)**

Time (min)	
Stem	**Leaf**
1	4 6 9
2	2 5 8
3	1 3 5 8
4	0 4 5 8 9
5	0 0 2 5
6	2 4 6 7
7	3 4 5 6
8	1 8
9	3 6
10	2

   b) 32 students **c)** 14 min **d)** 9%

3.6 Mean, Median, and Mode

1. **a)** 7.3, 7.5, 9 **b)** 14.3, 14.5, 15
   c) 55, 54, 54 **d)** 4.4, 4, 4
   e) 35.7, 26, 23 **f)** 51.75, 57, 2
2. **a)** $892.86; $7.50; $7.50 **b)** the mean
   c) the mean
3. **a)**

Type of juice	Frequency
apple	12
orange	32
lemonade	15
grape	23
grapefruit	4

   b) 17.2, 15, no mode **c)** orange **d)** grapefruit

3.7 Communicating about Graphs

1. **a)** sour cream **b)** plain
   c) sour cream, BBQ, salt & vinegar
2. The cafeteria should order more salad, less soup, and the same amount of pizza for the next month.

Test Yourself

1. **a)** the book club, and maybe the students also
   b) families in the neighbourhood
2. **a)** Teriyaki stir-fry
   b) Number of people it serves, or Price
3. For example, "How many hours of TV do you watch every week?"
4. **a)** 6 **b)** sum(B2:D2) **c)** 14
5. **b)** 50.1; 48; 46
6. **a)** 9 h **b)** 6.25%

Chapter 4

4.1 Exploring Number Patterns

1. **a)** 34, 32, 30, 28, 26 **b)** 16, 26, 36, 46, 56
   c) 6, 12, 24, 48, 96 **d)** 100, 10, 1, 0.1, 0.01
2. **a)** Add the two numbers above each box to get the number in the box.
   b) The missing numbers are 67, 103, and 170.
3. **a)** The next arrow will point down. The arrow after that will point down and to the left.
   b) The next figure will have 9 squares at the bottom and be 5 squares high. The figure after that will have 11 squares at the bottom and be 6 squares high.

4.2 Applying Pattern Rules

1. **a)** 15, 18, 21; Rule: Add 3 to each number to get the next.
   b) 21, 25, 29; Rule: Add 4 to each number to get the next.
   c) 256, 1024, 4096; Rule: Multiply each

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