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 \times 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

number by 4 to get the next.
   d) 64, 55, 46; Rule: Subtract 9 from each number to get the next.
   e) 160, 320, 640; Rule: Multiply each number by 2 to get the next.
   f) 80, 40, 20; Rule: Divide each number by 2 to get the next.
   g) 2592, 15 552, 93 312; Rule: Multiply each number by 6 to get the next.
   h) 65, 129, 257; Rule: Multiply each number by 2 and subtract 1 to get the next.
2. 1, 5, 25, 125, 625, …
3. 4, 7, 13, 25, 49, …
4. a) 25, 30, 35; Rule: Add 5 to each number.
   b) 100, 10, 1; Rule: Divide each number by 10.
   c) 1, 10, 100; Rule: Multiply each number by 10.
   d) 0.0625, 0.03125, 0.015625; Rule: Divide each number by 2.
   e) 625, 3125, 15 625; Rule: Multiply each number by 5.
   f) 289, 278, 267; Rule: Subtract 11 from each number.
   g) 1.8, 2.2, 2.6; Rule: Add 0.4 to each number.
   h) 27, 9, 3; Rule: Divide each number by 3.
5. 2, 3, 5, 9, 17, 33, 65, 129, …
6. All the numbers in the sequence are 1.
7. a) Multiply by 1, then 2, then 3, and so on.
   b) 720, 5040, 40 320

4.3 Using a Table of Values to Represent a Sequence

1. a) The next two values are 17 and 20.
   b) Add 3 to each value to get the next.
   c) Multiply the term number by 3 and add 2.
   d) 26
2. a) 35, 42, 49, 56
   b) Multiply the term number by 7.
   c) 140
3. a) The missing numbers are 26, 31, 36, and 41.
   b) Multiply the term number by 5 and add 1.
   c) 81
4. b) The missing values are 3, 5, 7, and 9.
   c) Add 2 to each value to get the next; or multiply each term number by 2 and add 1.
   d) 21 toothpicks

4.4 Solve Problems Using a Table of Values

1. The missing values are 3, 8, 13, 18, 23, 28, 33, and 38. The 15th figure will have 73 boxes. (Multiply the term number by 5 and

subtract 2.)
2. a) 2 cards
   b) 6 cards
   c) 12 cards
   d) The missing values are 0, 2, 6, 12, 20, 30, and 42.
   e) Pattern rule: Add 2, 4, 6, and so on, to each number to get the next number.
   f) 42 cards
3. 45 games
4. the seventh day of work
5. 6 weeks
6. a) 195 bars   b) on the 13th day
7. 8 days

4.5 Using a Scatter Plot to Represent a Sequence

1. The missing values are 3, 11, and 19.
2. a) 6 posts, 10 rails   b) 12 posts, 22 rails
3. a) 5 links
   b)

Term number (chain number)	Term value (number of links)
1	5
2	9
3	13
4	17

   c) 37 links

Test Yourself

1. a) 10, 12, 14; Rule: $+2$
   b) 15, 21, 28; Rule: $+1, +2, +3, …$
   c) 256, 1024, 4096; Rule: $\times 4$
   d) 50, 98, 194; Rule: $\times 2$ then -2
2. a)

Term number	Term value (number of circles)
1	1
2	3
3	6
4	10
5	15
6	21
7	28

   b) The seventh figure has 28 circles in it.
   c) Pattern rule: Add 2, 3, 4, and so on, to each number to get the next number.
3. a) 0, 5, 10, 15, 20, 25
   b) 2, 12, 72, 432, 2592, 15 552
   c) 100, 60, 40, 30, 25, 22.5

d) 1, 2, 5, 14, 41, 125
4. 5 days
5. b) the sixth figure
   c) 20 white squares, 16 shaded squares
6. b) 16 circles

Chapter 5

5.1 Area of a Parallelogram

1. a) 4 units **b)** 6 units **c)** 24 units squared
2. a) 15 cm^2 **b)** 8 m **c)** 5 cm **d)** 16.96 m^2
   e) 1.5 mm **f)** 0.5 dm
3. A: 6 units squared B: 18 units squared
   C: 20 units squared

5.2 Area of a Triangle

1. a) 24 m^2 **b)** 14 cm^2
2. a) 36 cm^2 **b)** 8 mm **c)** 20 m **d)** 87.3 cm^2
3. 360 cm^2
4. a) 6 cm^2 **b)** 12 cm^2 **c)** 6 cm^2 **d)** 24 cm^2

5.3 Calculating the Area of a Triangle

1. a) 3 units squared   **b)** 3 units squared
   c) 6 units squared
2. Your triangles could have $h = 4$, $b = 12$;
   $h = 6$, $b = 8$; $h = 2$, $b = 24$; $h = 8$, $b = 6$;
   $h = 12$, $b = 4$; or $h = 24$, $b = 2$.
3. a) 20 m^2
   b) The height of the second triangle is 8 m,
      while the height of the first triangle is
      10 m. The bases are the same. So the
      second triangle should have a smaller
      area than the first triangle.
   c) 16 m^2
   d) To find the area, you will multiply the base
      by the height and divide by 2. So the
      calculation will be the same whether $b = 4$
      and $h = 10$ or $b = 10$ and $h = 4$. The two
      triangles will have the same area.
4. a) 8000 cm^2 or 0.8 m^2
   b) 2000 cm^2 or 0.2 m^2
   c) Although the base and height of the
      triangles are fixed, your triangles can be
      various shapes such as symmetrical,
      slanted to the left, or slanted to the right.

5.4 Area of a Trapezoid

1. a) 20 units squared   **b)** 36 units squared
2. 280 cm^2
3. 6 m

4. Your trapezoid could have sides of 2, 4, and
   $h = 3$, or sides of 4, 5 and $h = 2$, among
   other solutions.

5.5 Exploring the Area and Perimeter of a Trapezoid

1.

	Side length (cm)	Side length (cm)	Base *a* (cm)	Base *b* (cm)	Height *h* (cm)
Trapezoid A	3.5	3.5	3	2	3.4
Trapezoid B	2.5	2.5	4	3	2.4
Trapezoid C	1	1	5.5	4.5	0.8

2. a) 12 cm
   b) Trapezoid A will probably have the
      greatest area. It looks the largest and is
      the closest in shape to a square, having
      the sides similar in length to the bases.
3. a) The three areas are 8.5 cm^2, 8.4 cm^2, and
      4.0 cm^2.
   b) Trapezoid A has the greatest area.

5.6 Calculating the Area of a Complex Shape

1.

Area of rectangle	Area of triangle	Area of parallelogram	Area of trapezoid
28 m^2	10 m^2	15 m^2	15 m^2

Total area = 68 m^2
2. a) 39 cm^2 **b)** 52 cm^2
3. a) 42 m^2 **b)** 6 m
4. a) 47 m^2 **b)** $376
5. a) 198 cm^2 **b)** 31.5 m^2 **c)** 8.25 m^2
   d) 318 cm^2

5.7 Communicating about Measurement

1. 120 cm, 684 cm^2
2. a) 52 cm^2; subtract the area of the
      parallelogram from the area of the square
   b) 273.75 cm^2
3. 0.4 m^2

Test Yourself

1. a) 15 cm^2 **b)** 24.5 cm^2 **c)** 13.86 cm^2
   d) 21.3 m^2
2. first triangle: 36 m^2, second triangle: 12 m^2
3. a) 2 m^2 **b)** 3.24 m^2 **c)** 32 m^2
   d) 102.24 cm^2 **e)** 625 cm^2
4. 108 cm^2
5. a) 22 cm^2; find the area of the triangle