Chapter 1 Answers

Get Set, page 1

1. a) 88 **b)** 3.75 **c)** 5 or –5
d) 8.89 or –8.89 **e)** 3.11 **f)** 10.19

2. a) $s = \frac{P}{7}$ **b)** $h = \frac{\text{S.A.} - b^2}{2b}$ **c)** $h = \frac{V}{\pi r^2}$

3. a) 12.7 cm **b)** 2.7432 m **c)** 60.96 cm
d) 3.1496 in. **e)** 2.4856 miles **f)** 1.7272 m

4. a) 15.8 cm **b)** 2.6 cm

5. 37.7 cm; 113.1 cm^2

6. a) Diagrams may vary.
b) five faces; two triangles, three rectangles
c) the two triangles; the two rectangles formed by the legs of the triangle and the length of the prism

1.1 Area, pages 2–4

Warm-Up

1. a) $\frac{4}{5}$ **b)** $\frac{13}{20}$ **c)** $\frac{3}{8}$ **d)** $\frac{3}{25}$

2. a) $(x + 5)(x – 3)$ **b)** $2(x – 8)(x – 1)$

3. (1, 3)

4. C

5. mean: 18.2; median: 19.5; mode: 14, 21, 25

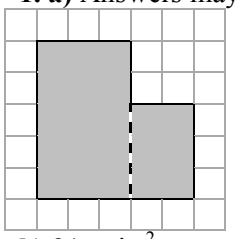
6. 150 cm^2

7. a) rectangular prism **b)** pentagon

8. –16

Practise

1. a) Answers may vary. For example:



b) 21 $units^2$

2. 12 $units^2$

3. 8.0 cm^2

4. a) 480 m^2 **b)** 544 m^2

5. a) Calculate the total area of the large square, then subtract the area of the small white square. Calculate the area of one triangle and multiply the area by four.
b) 13.52 cm^2

6. 8.3 m^2

7. 14.48 m^2

8. 452 cm^2

9. 15.3 cm^2

10. 4 cm^2

1.2 Volume, pages 5–7

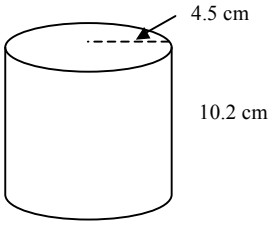
Warm-Up

1. a) 7.31 **b)** 224.06 **c)** 56.00 **d)** 16.74

2. a) $y = –x^2 – 4x + 3$ **b)** $y = x^2 – 6x – 20$

3. x-intercepts: (1, 0), (–3, 0); y-intercept: (0, –6)
4. 540°
5. 0.25
6. $P = 4w + 6$
7. parallelogram
8. 4.68 cm^2

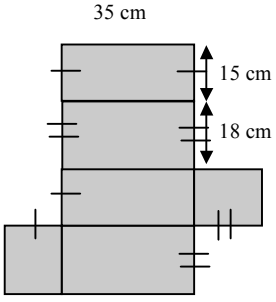
Practise
1. a) regular hexagon **b)** 160 cm^3
2. a) cubic centimetres **b)** 12.1 cm^3
3. No. The prism has congruent rectangular faces but they are not opposite. This is a pentagonal prism.
4. a)



b) 648.9 cm^3 **c)** 0.65 L
5. 1029 cm^3
6. a) 18.85 cm^2 **b)** 3.2 cm
7. 13.7 kg
8. 750 cm^3
9. 3.87 kg

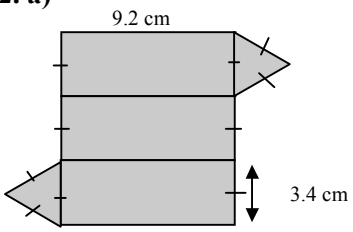
1.3 Surface Area, pages 8–10
Warm-Up
1. a) $\frac{4}{17}$ **b)** $\frac{3}{5}$ **c)** $\frac{9}{20}$ **d)** $\frac{18}{25}$
2. a) $6x^2 - 17x + 5$ **b)** $8x^2 - 77x - 30$
3. (0, 3)
4. 32 cm
5. mean: 13.71; median: 13; mode: 24
6. 4 cm by 7 cm
7. volume
8. 887.3 cm^3

Practise
1. a)



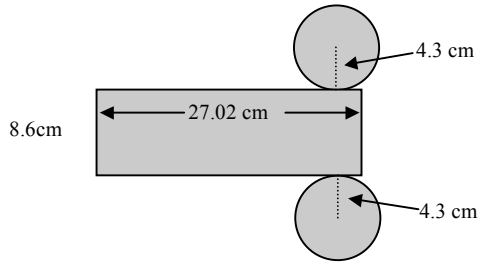
b) 2850 cm^2

2. a)



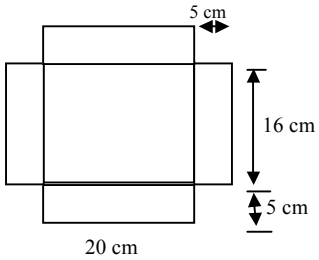
b) 5.01 cm^2 **c)** 103.9 cm^2

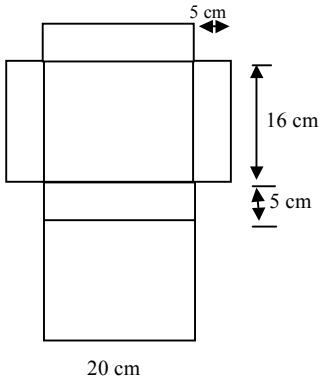
3. a)



b) 348.5 cm^2

4. a) **Box A** **Box B**





b) Box A: 680 cm^2; Box B: 1000 cm^2. Box B has 320 cm^2 more surface area.

5. a) length: 105 mm; width: 35 mm

b) 17 150 mm^2 or 171.5 cm^2

6. a) 605 m^2 **b)** 61 cans

7. a) 14.4 m^2 **b)** 11.1 m^2

8. 242 cm^2

1.4 Optimize Perimeter and Area, pages 11–13

Warm-Up

1. a) 12.48 **b)** 20.77 **c)** 4.32

2. a) $3(x + 1)(x - 4)$ **b)** $-2(x + 7)(x + 2)$

3. 4

4. right angles, quadrilateral, parallelogram

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

6. 4 cm

7. D

8. 84 cm^2

Practise

1. a) A: 7 units^2; B: 12 units^2; C: 16 units^2; D: 15 units^2

b) A, B, D, C **c)** It is a square.

2. a) A: 26 units; B: 24 units; C: 30 units; D: 40 units

b) B, A, C, D

3. a)

Width (m)	Length (m)	Area (m^2)
1	26	26
2	**24**	**48**
3	**22**	**66**
4	**20**	**80**
5	**18**	**90**
6	**16**	**96**
7	**14**	**98**
8	**12**	**96**
9	**10**	**90**
10	**8**	**80**
11	**6**	**66**
12	**4**	**48**
13	**2**	**26**

b) width of 7 m, length of 14 m

c) The length is double the width.

4. a)

Length (segments)	Length (m)	Width (segments)	Width (m)	Area (m^2)
1	2	8	16	32
2	**4**	**7**	**14**	**56**
3	**6**	**6**	**12**	**72**
4	**8**	**5**	**10**	**80**
5	**10**	**4**	**8**	**80**
6	**12**	**3**	**6**	**72**
7	**14**	**2**	**4**	**56**
8	**16**	**1**	**2**	**32**

b) 8 m by 10 m

c) 9 m by 9 m

1.6 Analyse Optimum Volume and Surface Area, pages 14–16

Warm-Up

1. a) –1 **b)** 84 **c)** 30

2. a) $2(x + 7)(x - 7)$ **b)** $3(x - 5)(x + 3)$

3. 4000 bacteria

4. C

5. median: 42; first quartile: 37; third quartile: 45.5

6. $A = w(12 - w)$

7. parallelogram

8. a) 24 cm **b)** 6 cm by 6 cm

Practise

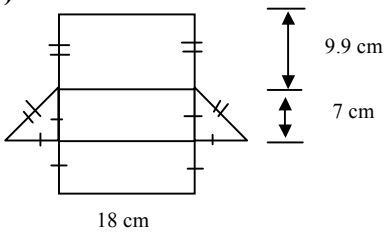
1. a) A: 56 cm^2; B: 56 cm^2; C: 50.04 cm^2; D: 50.9 cm^2

b) C, D, A, B

2. a) A: 32 cm^3; B: 40 cm^3; C: 27.5 cm^3; D: 40.5 cm^3

b) C, A, B, D
3. a) a cube **b)** All sides 30 cm in length.
4. a) 50 cm^3 **b)** All sides approximately 3.68 cm in length.
5. a) 0.94 m^3 **b)** When height equals diameter.
c) height: 1.06 m; radius: 0.53 m
6. height = 9.8 ft, base = 19.6 ft, length = 7.8 ft
7. side length of triangular face = 11.70 cm, depth = 6.75 cm
8. 11 m^3

Chapter 1 Review, pages 17–18
1. 8.3 cm^2
2. 229.8 cm^3
3. 7.4 cm
4. a) 9.9 cm
b)



c) 479.2 cm^2
5. C, A, B
6. width: 5 m; length (opposite house): 10 m
7. a) 648 cm^3 **b)** All sides approximately 8.65 cm in length.