

Level F MATHS BOOK

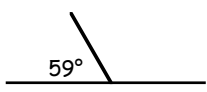
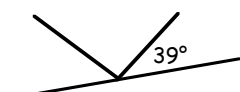
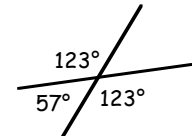
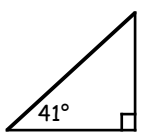
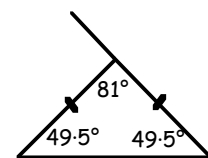
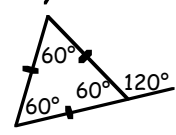
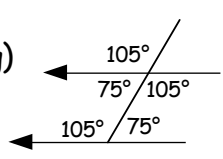
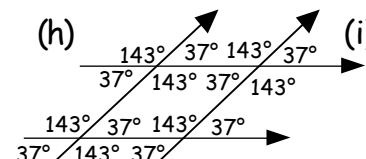
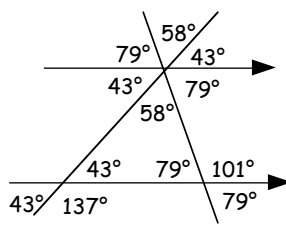
Topic in a Nutshell - Answers

**Please make
extra copy of
these answers**

Answers to Chapter 2 (page 19)

- | | | | |
|-----------------------------|---------------------------|-------------|-------------------------|
| 1. (a) -3°C | (b) -16°C | | |
| 2. (a) $-\text{£}30$ | (b) $\text{£}130$ | (c) $56/57$ | (d) 4°C |
| 3. (a) 6 | (b) -2 | (c) -5 | (d) -12 |
| (e) 5 | (f) 7 | (g) -3 | (h) -12 |
| (i) 5 | (j) 2 | (k) 6 | (l) 20 |
| (m) 40 | (n) 53 | (o) -90 | (p) -5 |
| (q) -19 | (r) 0 | (s) -31 | (t) -0.2 |
| 4. (a) x | (b) $7y$ | (c) t | (d) $4u$ |
| (e) $-17h$ | (f) $-11p$ | (g) $3pq$ | (h) $2w^2$ |
| 5. (a) -12 | (b) -42 | (c) -40 | (d) -4 |
| (e) -8 | (f) -2 | (g) 12 | (h) 16 |
| (i) -50 | (j) -81 | (k) -5 | (l) 18 |
| (m) 33 | (n) 14 | (o) 24 | (p) 4 |
| (q) 4 | (r) -27 | (s) -12 | |

Answers to Chapter 3 (page 27)

1. (a)  (b)  (c) 
- (d)  (e)  (f) 
- (g)  (h)  (i) 
2. (a) hexagon (b) 72° (c) 18°
3. (a) 30° (b) 75° (c) 45° (d) 7.5°
4. (a) 230° (b) 354.5°

Answers to Chapter 5 (page 36)

1. (a) 6, 12, 18, 24, 30, 36, 42, 48 (b) 11, 22, 33, 44, 55, 66, 77, 88
(c) 15, 30, 45, 60, 75, 90, 105, 120 (d) 25, 50, 75, 100, 125, 150, 175, 200
2. (a) 12, 15, 18, 24, 27, 33, 36, 45, 51, 60 (b) 4, 12, 16, 20, 24, 36, 40, 60
(c) 5, 15, 20, 40, 45, 55, 60 (d) 12, 18, 24, 36, 60
3. (a) 6 (b) 24 (c) 12 (d) 120
4. 12.36 pm
5. (a) 1, 2, 3, 6 (b) 1, 2, 3
(c) 1, 2, 3, 4, 6, 8, 12, 16, 24, 48 (d) 1, 3, 9, 11, 33, 99,
6. (a) 2 (b) 3 (c) 1 (d) 4
(e) 4 (f) 6 (g) 1 (h) 2x
7. 2
8. 2, 5, 7
9. 53, 59, 61, 67, 71, 73, 79, 83, 89, 97
10. (a) $\div 2$ (b) $\div 5$ (c) $\div 10$ (d) $\div 3$
11. (a) $2 \times 2 \times 2 \times 5$ (b) $3 \times 5 \times 5$
(c) $2 \times 2 \times 2 \times 5 \times 5 \times 5$ (d) $2 \times 2 \times 3 \times 5 \times 11$

Answers to Chapter 7 (page 45)

1. (a) 8×10^2 (b) 7×10^4 (c) 9.3×10^4 (d) 1.4×10^6
(e) 5.47×10^5 (f) 3.47×10^7 (g) 1.03×10^2 (h) 1×10^7
2. (a) 2.5×10^6 (b) 2.5×10^8
3. (a) 430 (b) 8100 (c) 10 800 (d) 12 000
(e) 5 150 000 (f) 4 000 000 000 (g) 60 (h) 50 000
4. (a) 1×10^{-3} (b) 2.5×10^{-2} (c) 4×10^{-1} (d) 5×10^{-4}
(e) 1.354×10^{-2} (f) 1.23×10^{-4} (g) 1×10^{-1} (h) 1×10^{-6}
5. (a) 0.017 (b) 0.0082 (c) 0.000504 (d) 0.0000455
(e) 0.9 (f) 0.0061 (g) 0.000004 (h) 0.000001
6. (a) 8.6×10^{-3} (b) 0.000008702
7. (a) 1×10^{-25} (b) 1×10^{15} (c) 3.1536×10^7 seconds

Answers to Chapter 11 (page 55)

1. (a) $2x$ (b) a^2 (c) $9p^2$ (d) $42pq$
(e) $e + 3$ (f) $8x^2$ (g) $7x^4$ (h) $6 + 4m$
2. (a) -1 (b) 29 (c) 7
(d) 41 (e) 10 (f) 1
3. (a) $6x + 2y + 8$ (b) $3xy + 12x$
4. (a) $18 + 6x$ (b) $40 - 48n$ (c) $24v + 48v^2$ (d) $m^2 - mn + 4mp$
(e) $-6 - 3w$ (f) $-u - u^2$ (g) $-2a^2 + 3ab$ (h) $-10k^2 + 4kp$
5. (a) $2x + 6$ (b) $10a - 20$ (c) $5p + 2$
(d) $5c + 5$ (e) $5x + 13$ (f) $11q - 4$
6. $a^2 - 4a + 18$
7. (a) 3 (b) 19 (c) 37
(d) 24 (e) 1 (f) 7
8. (a) $6(x - 4)$ (b) $5(7w - 1)$ (c) $5(4a + 5b)$ (d) $6(2m + 3n)$
(e) $h(12 - h)$ (f) $2p(3k - 4d)$ (g) $4q(q - 3r)$ (h) $6m(m^2 - 3)$

Answers to Chapter 13 (pages 71/72)

1. (a) 66.49 (b) 44.48 (c) 23.827
(d) 27.354 (e) 0.769 (f) 10.773
2. 0.557 kg
3. 20.1°C
4. (a) 3.7 (b) -8.3 (c) 11 (d) -7.36
5. (a) 10.4 (b) 56 (c) 240 (d) 3000
(e) -2.7 (f) -4 (g) 24 (h) 63
6. (a) $35p$ (b) $\text{£}4.90$ (c) $\text{£}28$ (d) $\text{£}630$
7. (a) 1.1 (b) 0.7 (c) 0.002 (d) 0.0008
(e) -1.8 (f) -0.8 (g) 0.9 (h) 0.015
(i) 18 (j) 0.0042 (k) 0.0045 (l) 0.0325
(m) 6.4 (n) 2400 (o) 18 (p) 0.016
8. 0.25 g
9. $\text{£}24$
10. (a) 90 (b) 29 (c) 170 (d) 0.8
(e) 40 (f) 0.3 (g) 0.6 (h) 0.08
(i) 50000 (j) 0.1 (k) -0.8 (l) 0.7
11. (a) 0.0003 kg (b) 0.3 g
12. (a) 7.6 (b) 3.98 (c) 54.229 (d) 2.1454

cont'd ...

Answers to Chapter 13 (pages 71/72) Cont'd...

13. £0.67

14. (a) 3 (b) 2 (c) 7 (d) 2

15. (a) 2000 (b) 0.0014 (c) 58000 (d) 0.0500

16. £6250

17. (a) £4966 (b) £967

18. (a) £10.27(5) (b) £205.40 (or £205.50)

19. £78.50

Answers to Chapter 17 (pages 90/91)

1. (a) mean - 4.2, median - 4, mode - 2, range - 7
 (b) mean - 2.475, median - 2.5, mode - 2.5, range - 1.1

2. 6

3. 0 - 4 (2), 5 - 9 (3), 10 - 14 (6), 15 - 19 (6),
 20 - 24 (3), 25 - 29 (5), 30 - 34 (4), 35 - 39 (1)

4.

100 - 109	3
110 - 119	3
120 - 129	6
130 - 139	4
140 - 149	5
150 - 159	5
160 - 169	10

5. (a) 35, 48, 35, 16, 54 mean 6.71 (b) 7, 15, 20, 22, 26 median 6

6. (a) dog -120°, cat -180°, fish - 48°, other -12° (b) see pie-chart

7. (a) $1 \mid 9 = \text{£}1.90$ (b) 17

(c) 19, 20, 22, 27, 32, 32, 34, 37, 38, 40, 40, 40, 44, 47, 49, 50, 53

(d) 40 (e) 38

8.

1	1 2 4 9
2	3 4 5 7
3	2 2 5 7 9
4	0 3 4
5	1 4 4 7
6	0 1 3 5

$2 \mid 3 = 23$

Answers to Chapter 17 (pages 90/91) Cont'd...

9. (a) (i) 2,140 cm (ii) 3,140 cm (iii) 5,160 cm
(iv) 4,155 cm (v) 4,135 cm (vi) 6,165 cm
(b) Positive (c) about a size 4
10. (a) check graph (b) about 120 cm
11. $\frac{2}{3}$
12. (a) $\frac{1}{50}$ (b) $\frac{1}{2}$ (c) $\frac{9}{50}$ (d) $\frac{6}{25}$
(e) $\frac{3}{25}$ (f) $\frac{7}{50}$ (g) $\frac{3}{10}$ (h) $\frac{3}{50}$

Answers to Chapter 19 (page 100)

1. (a) £2.50 (b) £8.02 (c) £5.10
(d) 75p (e) £6.50 (f) 8p
2. 65%
3. £4.05
4. £13,543.20
5. £52.29
6. £2313.36
7. (a) 75% (b) $66\frac{2}{3}\%$
8. 21%
9. £1050
10. £95000

Answers to Chapter 23 (pages 116/117)

1. (a) 135 cm^2 (b) 110.25 cm^2 (c) 54 cm^2
(d) 11.5 cm^2 (e) 17.5 cm^2 (f) 28.8 cm^2
(g) 2160 mm^2 (h) 25.6 cm^2 (i) 6 m^2
2. (a) 247 cm^2 (b) 120 cm^2 (c) 1776 m^2
3. (a) 9.5 cm (b) 8 mm (c) 9 m
(d) 125 mm (e) 6.4 m (f) 10 cm

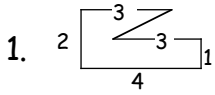
Answers to Chapter 29 (page 127)

- (a) 62.8 cm (b) 25.12 m
- (a) 41.12 cm (b) 17.85 cm (c) 53.98 cm
- (a) 9.6 cm (b) 19.1 m
- (a) 1256 cm² (b) 1384.74 mm²
- (a) 100.48 cm² (b) 19.625 cm² (c) 202.93 cm²
- 45.86 cm²
- 24.84 cm
- 3846.5 cm²
- (a) 31.4 cm (b) 78.5 cm²

Answers to Chapter 31 (page 140)

- (a) $\frac{44}{5}$ (b) $5\frac{1}{4}$
- (a) $\frac{29}{6}$ (b) $\frac{72}{7}$
- 20 slices
- (a) $\frac{5}{7}$ (b) $\frac{1}{4}$ (c) $\frac{4}{6}$ ($\frac{2}{3}$)
(d) $\frac{8^2}{5}$ (e) $\frac{3^4}{15}$ (f) $2\frac{5}{6}$
- (a) $\frac{1}{6}$ (b) $\frac{8}{15}$ (c) 3
(d) $2\frac{1}{2}$ (e) $2\frac{7}{24}$ (f) $2\frac{1}{4}$
- Tommy now weighs $10\frac{3}{4}$ stones
- $15\frac{3}{5}$
- $25\frac{3}{8}$
- $3\frac{1}{5}$
- $\frac{1}{8}$

Answers to Chapter 37 (pages 155/156)



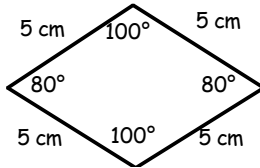
2. $a = 1.9 \text{ m}$ $b = 4.5 \text{ m}$

3. $\frac{3}{4}$

4. See drawings of 3 triangles

5. See drawing of Parallelogram.

6.



7. (a) Drawing of quadrilateral (b) 6.2 cm (c) 25°.

8. (a) 15.8 cm (b) 7.9 km

9. 1 : 500

10. (a) 230° (b) 085°

11. $a = 60$ $b = 64^\circ$ $c = 56^\circ$

Answers to Chapter 41 (page 170)

1. (a) 4 : 3 (b) 3 : 4

2. (a) 1 : 2 (b) 3 : 8 (c) 7 : 3

(d) 4 : 15 (e) 4 : 6 : 11

3. (a) 1 : 5 (b) 4 : 5

4. (a) 1 : 36 (b) 1 : 16 (c) 1 : 15

(d) 1 : 90 (e) 1 : 13

5. (a) 700 (b) 418

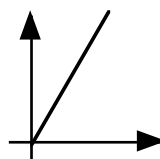
6. Alison - £3250 Colin - £1750

7. Paul - 20 Pat - 80 Peter - 100

8. (a) £3.40 (b) £17.50 (c) £240

9. (a) Check diagram

(b) Yes - its a line through the origin



10. (a) 4 hr (b) 60

11. £12.00

Answers to Chapter 43 (page 178)

1. (a) 5 (b) 19 (c) 0
(d) 10 (e) 6 (f) 7
(g) 1 (h) 4 (i) -3
2. (a) 6 (b) 5 (c) 8
(d) 1 (e) 4 (f) 9
(g) 6 (h) -3 (i) -4
(j) -6 (k) -2 (l) -2
3. (a) $4x = 2x + 6$ (b) 3
4. (a) 4 (b) 1 (c) 1
(d) 2 (e) 5 (f) 2
(g) 3 (h) 2 (i) -1
(j) 2 (k) 0
5. (a) 12 (b) 12 (c) 24
(d) 6 (e) $-18\frac{1}{3}$ (f) 24
(g) 32 (h) $25\frac{3}{5}$ (i) $5\frac{5}{6}$
(j) 39 (k) 3 (l) 14
6. (a) $x > 5$ (b) $x < 16$ (c) $x \leq 6$
(d) $x < 8$ (e) $x > 4$ (f) $x < 7$
(g) $x < 3$ (h) $x \geq 2$ (i) $x \leq 8$
(j) $x \leq 2$ (k) $x > 1$ (l) $x \leq \frac{1}{4}$

Answers to Chapter 47 (page 192)

1. (a) 60 km (b) 40 mph (c) 1hr 30 min
2. (a) 0.2 hr (b) 0.05 hr (c) 2.8 hr (d) 2.9 hr
3. (a) 36 mins (b) 9 mins (c) 3 hr 42 mins (d) 1 hr 27 mins
4. (a) 10 km/hr (b) Jay - 2hr 51 min Faye - 2hr 42 min Jay by 9 min
5. (a) 1230 (b) 12 km (c) 8 km/hr (d) 45 mins
(e) 15 min (f) 48 km/hr (g) 1 hour

Answers to Chapter 53 (page 201)

- (a) Check table (b) $C = 3D$ (c) £60
- (a) (i) $y = 4x$ (ii) $y = 3x$
(b) $y = 4x$ Plot (0, 0) (1, 4) (2, 8) (3, 12) & join
 $y = 3x$ Plot (2, 6) (4, 12) (6, 18) (8, 24) & join
Both lines pass through O(0, 0).
- (a) Check table $C = 2T + 5$ (b) £25
- (a) $y = 2x + 3$ (b) $y = 4x - 7$ (c) $y = x - 3$ (d) $y = 6x - 1$
- Straight line through the origin.

Answers to Chapter 59 (page 216)

- (a) 49 (b) 196 (c) 4 (d) 13
- (a) 10 cm (b) 13 cm
- (a) 8.49 m (b) 39.23 mm
- (a) 204 m (b) 3 m 46 cm
- 6.93 cm
- 300 cm²