

# Level E MATHS BOOK

## Topic in a Nutshell – Answers

**\*\*Please make  
extra copy of  
these answers\*\***

### Answers to Chapter 1 (pages 23/24)

- two million three hundred and forty six thousand and five
- (a) 407 850 (b) 2 250 000
- 4208 4028 4010 4001 3982 3892
- $P = 2500$   $Q = 2840$
- 286 passengers
- (a) 85 305 (b) £79.44 (c) 421 envelopes (d) 188 meals
- (a) 1050 (b) 14 700 (c) 1 350 000 (d) 8100 (e) 945 (f) 2100
- (a) £12 (b) £280 (c) £1500 (d) 500 (e) 40 (f) 9 people
- (a) £16 730 (b) £16 700 (c) £17 000
- £126 11. 8 coaches 12. 301

### Answers to Chapter 2 (pages 41/42)

- 4.25
- (a) 2 tenths (b) 4 hundredths (c) 7 thousandths
- (a) 7.5 (b) 5.07
- (a) 2.4 (b) 23.9 (c) 4.6 (d) 10.8
- (a) 0.86 (b) 5.45 (c) 7.8 (d) 6.37
- (a) 55.61 (b) 8.19 (c) 8.637 (d) 2.635 (e) 343.2 (f) 4.23  
(g) 7.4 (h) 0.078
- (a) 9.3 (b) 7.7 (c) 3.4 (d) 0.8
- (a) 5.3 (b) 242.47 (c) 12.3 (d) 690 (e) 500.2 (f) 2870  
(g) 2.71 (h) 0.075 (i) 8.7 (j) 0.0123 (k) 4.87 (l) 0.0261
- £2.72 10. £2.09
- (a) 12 tins (b) £78
- £43.60 13. 81.7 litres 14. 48.2 mpg
- Print Out are dearer by £0.001 per disk (or 0.1p)

### Answers to Chapter 3 (page 48)

- (a) 0845 (b) 1435 (c) 2355 (d) 1200 (e) 0015 (f) 1755
- (a) 9.50 am (b) 1.55 pm (c) 11.59 am (d) 11.59 pm
- 6 hours 40 minutes
- 12.15 pm
- (a) 30 mins (b) 3 hrs 30 mins (c) 2.10 pm
- 2.20 am
- 56.63 secs

### Answers to Chapter 4 (pages 57/58)

- 48 months
- garden shed + rake  
lawnmower + shears  
power washer + shears  
power washer + rake  
lawnmower + rake
- Sphinx is cheaper (£39·61 compared with £39·73)
- (a) £73·70 (b) £62·50
- £452
- (a) 554·40 euros (b) £222·22
- £277·78 cheaper
- Davie – £26 500 p.a. Harvey – £26 703 p.a. Nick – £26 403 p.a. Harvey is paid the most
- 8 pies (8 x 60p = £4·80) and 2 bridies (2 x 50p = £1) Total = £5·80

### Answers to Chapter 5 (page 66)

- (a)  $-7^{\circ}\text{C}$  (b)  $-13^{\circ}\text{C}$
- +£245
- (a) 3 (b) -2 (c) -12 (d) 6
- (a) 2 (b) 0 (c) 5 (d) 0 (e) -18 (f) -22  
(g) -1 (h) 1
- 27
- (a) -2 (b) -7 (c) -7 (d) -13 (e) -5 (f) -7  
(g) 2 (h) -29
- (a) (b). check diagram (c) D(0,-2)

### Answers to Chapter 6 (pages 77/78)

- (a)  $\frac{2}{5}$  (b)  $\frac{7}{12}$  (c)  $\frac{3}{8}$
- (a)  $\frac{2}{4}, \frac{3}{6}$  (b)  $\frac{4}{10}, \frac{6}{15}$  (c)  $\frac{6}{20}, \frac{9}{30}$
- (a)  $\frac{1}{2}$  (b)  $\frac{3}{4}$  (c)  $\frac{3}{8}$
- (a) 15 (b) 9 (c) 8 (d) 9 (e) 12 (f) 10  
(g) 4 (h) 27 (i) 28 (j) 1065 (k) 174 (l) 327
- (a) 22 500 (b) 37 500
- (a)  $\frac{1}{10}$  (b)  $\frac{4}{5}$  (c)  $\frac{7}{20}$  (d)  $\frac{3}{25}$  (e)  $\frac{11}{25}$  (f)  $\frac{3}{40}$
- (a) 6% (b) 80% (c) 70% (d) 62·5% 8. 40%
- (a) 85% (b) 80% (c) History
- (a) £43·20 (b) £60 (c) 51p (d) £100 (e) £24·50 (f) 90p
- 6000
- (a) £5 (b) 4p (c) £7·50 (d) 3p (e) £48 (f) £72
- (a) £1·80 (b) 32 litres (c) 20 miles

### Answers to Chapter 7 (pages 90/91)

1. (a) 1 (b) 2 (c) 2 (d) 2 (e) 1 (f) 0  
2. see reflected figures  
3. (a) Y (b) Y (c) N (d) N (e) N (f) Y  
4. (a)  $\frac{1}{4}$  (2) (b)  $\frac{1}{3}$  (3) (c)  $\frac{1}{8}$  (8) (d)  $\frac{1}{4}$  (4) (e)  $\frac{1}{3}$  (3) (f)  $\frac{1}{2}$  (2)  
5. (a) see figure (b) see figure  
6. see drawings  
7. (a) No (b) Yes (c) Yes (d) No

### Answers to Chapter 8 (pages 102/103)

1. (a)  $10x$  (b)  $9x$  (c)  $3x$  (d)  $3x$  (e)  $2x$  (f)  $9x - 1$   
(g)  $x + 6$  (h)  $3x + y$  (i)  $a + 4b$  (j)  $x + 3y - 6$  (k)  $9x^2 + y^2$  (l)  $5x^2 + x$   
2. (a) 14 (b) 21 (c) 9 (d) 35  
3. (a)  $b + 2a$  (b)  $20 - \frac{x}{y}$   
4. (a) 11 (b) 7 (c) 99 (d) 22 (e) 65 (f) 90  
(g) 99 (h) 0 (i) 600  
5. (a)  $2p + 4q$  (b) 24cm  
6. (a) 11 (b) 3 (c) 7 (d) 5 (e) 5 (f) 0  
(g) 40 (h) 30 (i) 8  
7. (a)  $x - 12 = 3$  (b)  $x = 15$  (15 chips) 8.  $D < 80$   
9. (a)  $<$  (b)  $>$  (c)  $<$  (d)  $>$   
10. (a)  $-2, -1$  (b) 2, 3 (c) 1, 2, 3 (d)  $-2, -1, 0, 1, 2$  11.  $T < 20$   
12. (a)  $x > 4$  (b)  $x \leq 10$  (c)  $x \geq 6$  (d)  $x \geq 3$  (e)  $x < 9$  (f)  $x > 7.5$   
(g)  $x < 3$  (h)  $x > 10$  (i)  $x < 3$

### Answers to Chapter 9 (pages 116/117)

1. (a) 7 (b) £5.40  
2. (a) 8:3 (b) 0:7 (c) Judge giving a mark of 10 3. 17 houses  
4. (a) check table
- |       |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
|-------|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|
| score | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| freq  | 1 | 0 | 3 | 1 | 1 | 2 | 1  | 1  | 2  | 0  | 2  | 6  | 0  | 2  | 1  | 1  | 3  |
- (b) 27 (c) 3  
5. (a) (i) 3 (ii) 2 (iii) 4 (b) 10 beats/min (c) Tony's team (d) Alf's team  
6. (a) (i) 25% (ii) 10% (b) (i) 60 (ii) 120  
7. check pie chart (Plain = 5 sects) (Fruit = 10 sects) (Treacle =  $2\frac{1}{2}$  sects) (Soda =  $2\frac{1}{2}$  sects)

### Answers to Chapter 10 (page 131)

1. (a) 510 (b) 0.045 (c) 47 (d) 1.6 (e) 0.25 (f) 0.03  
2. 1.4 cm left 3. 45 m 4. 7 cm 5. £150  
6. (a)  $400 \text{ m}^2$  (b)  $84 \text{ cm}^2$   
7. (a)  $32.8 \text{ m}^2$  (b) £606.80  
8.  $45 \text{ m}^2$  9.  $228 \text{ cm}^2$

## Answers to Chapter 11 (pages 144/145)

1. (a) start with 4, add 5 (b) start with 40, subtract 8  
 (c) start with 1000, divide by 5 (d) start with 2, multiply by 4
2. (a) 29,36 (b) 8,5 (c) 162,486 (d) 20,5 (e) 29,47 (f) 50,100
3. 36, 49, 64, 81, 100
4. 1, 3, 6, 10, 15, 21, 28
5. (a) 3, 6, 9, 12, 15, 18 (b) 3 x number of videos (c)  $C = 3V$  (d) £30
6. (a)  $T = 50 \times B$  (b)  $D = 24 \times H$
7. (a) (i) 110€ (ii) 130€ (iii) 150€  
 (b) 21 € (c)  $20 \times D + 30$  (d) 230 €
8. (a)  $P = 0.5 \times N$  (b)  $P = 10 \times T + 5$  (c)  $S = 3 \times P - 2$   
 (d)  $T = 4 \times P - 1$
9. (a) 

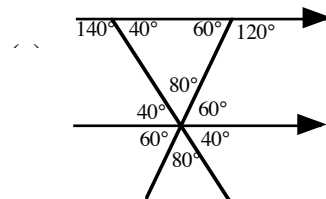
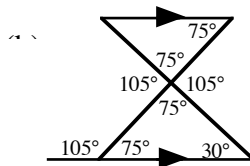
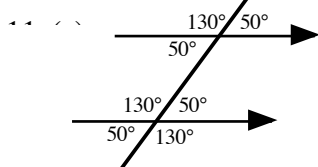
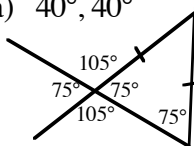
|                    |   |   |    |    |    |
|--------------------|---|---|----|----|----|
| Pattern No ( $P$ ) | 1 | 2 | 3  | 4  | 5  |
| Counters ( $C$ )   | 2 | 6 | 12 | 20 | 30 |

 (b)  $P = C^2 + C$

## Answers to Chapter 12 (pages 160/161)

1. (a) Right (b) Obtuse (c) Reflex (d) Acute (e) Straight
2. (a)  $14^\circ, 40^\circ, 55^\circ, 77^\circ$  (b)  $180^\circ$  (c)  $93^\circ, 125^\circ, 157^\circ, 173^\circ$   
 (d)  $90^\circ$  (e)  $220^\circ, 340^\circ$
3. (a)  $\angle ABC$  (b)  $\angle DEF$  (c)  $\angle PTR$  (d)  $\angle XMR$  (e)  $\angle VXY$
4. (a)  $\angle SMP$  (b)  $\angle MPS$  (c)  $\angle MSP$
5. (a)  $120^\circ$  (b)  $161^\circ$  (c)  $32^\circ$  (d)  $20^\circ$
6.  $32^\circ$  7. check drawing –  $32^\circ, 148^\circ, 148^\circ$  8.  $a = 20^\circ, b = 128^\circ$
9. (a)  $40^\circ, 40^\circ$  (b)  $70^\circ, 40^\circ$

10.



## Answers to Chapter 13 (page 167)

1. (a) (0), 3, 6, 9, 12, 15 (b) (0), 5, 10, 15, 20, 25 (c) (0), 8, 16, 24, 32, 40
2. (a) 24, 28, 32, 36, 40 (b) 36, 45, 54, 63
3. (a) 14 (b) 6 (c) 24
4. (a) 1, 19 (b) 1, 2, 3, 4, 6, 12 (c) 1, 2, 4, 5, 8, 10, 20, 40
5. (a) 4 (b) 5 (c) 12
6. 2, 3, 19, 41
7. (a) 140 (b) 5
8. 21 → 37 → 49

### Answers to Chapter 14 (page 174)

1. check drawing
2. check drawing
3. (a) check drawing (b) isosceles (c)  $113^\circ, 33^\circ, 33^\circ$
4. check drawing
5. (a) (b) check drawing (c)  $\angle ADC = 36^\circ, \angle ABC = 77^\circ, \angle BAD = \angle BCD = 123^\circ$

### Answers to Chapter 15 (page 182)

1. (a) 5 : 2 (b) 2 : 5
2. (a) 28 : 7 (b) 4 : 1
3. (a) 8 : 12 (b) 2 : 3
4. 1 : 3
5. 20 public onlookers
6. 30 buses
7. (a) 21 pear trees (b) 70 trees (c) 2100 fruits
8. 6 : 1

### Answers to Chapter 16 (pages 192/193)

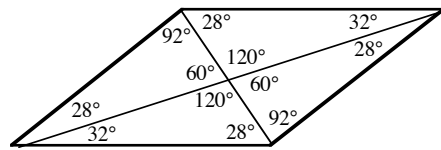
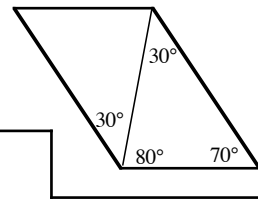
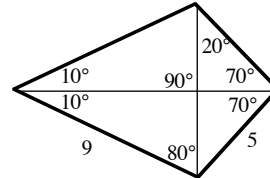
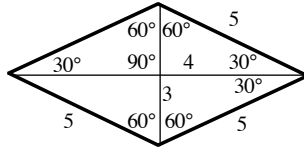
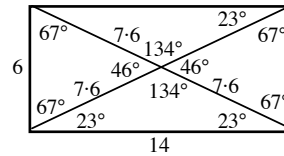
1. (a)  $20 \text{ cm}^3$  (b)  $22 \text{ cm}^3$  (c)  $15 \text{ cm}^3$  (d)  $18 \text{ cm}^3$
2. (a)  $90 \text{ cm}^3$  (b)  $1120 \text{ mm}^3$  (c)  $2268 \text{ m}^3$
3. 1.5 cm
4.  $8500 \text{ cm}^3$
5. (a)  $36\,000 \text{ cm}^3$  (b) 36 000 ml (c) 36 litres (d) 3 drums
6. (a) 1.6 litres (b) 0.8 litres (c) 1.12 litres
7. Yes,  $V = 270\,000 \text{ cm}^3 = 270 \text{ litres} \div 5 = 54 \text{ minutes}$
8. (a) (i) 1 (ii) 5 (iii) 14 (iv) 30  
(b) 55 (b) 385

### Answers to Chapter 17 (pages 206/207)

1. (a) 5 cm (b) 50 m
2. (a) 6 cm x 3.5 cm (b) 30 m x 17.5 m (c) (6.5 cm)  $\Rightarrow$  32.5 metres
3. (a) check drawing (b) 6.5 cm (c) 13 metres
4. (a) check drawing (b) 7.2 cm  $\rightarrow$  28.8 metres
5. South East
6. (a)  $060^\circ (\pm 2^\circ)$  (b)  $150^\circ (\pm 2^\circ)$  (c)  $230^\circ (\pm 2^\circ)$
7. (a) check drawing (b) 11.1 cm (c) 111 kilometres
8.  $210^\circ$

### Answers to Chapter 18 (pages 226/227)

1. check answers
2.  $6.25 \text{ cm}^2$
3. (a) 7 cm (b) 28 cm
4. check answers
5.  $28 \text{ cm}^2$
6. check sketch
7.  $124^\circ$
8. check answers
9. check drawing
10. check drawing
11. check answers
12. (a) (b) check drawing
13. check drawing
14. check answers
15. check drawing
16. check drawing
17. check answers
18. (a)  $62^\circ$  (b)  $108^\circ$



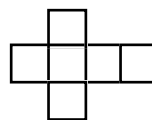
|                  | square | rectangle | rhombus | kite   | parallelogram | trapezium |
|------------------|--------|-----------|---------|--------|---------------|-----------|
| Equal sides      | 4      | opp       | 4       | adj    | opp           | none      |
| Parallel         | yes    | yes       | yes     | no     | yes           | 1 pair    |
| Diags bisect     | yes    | yes       | yes     | no     | yes           | no        |
| Diags equal      | yes    | yes       | no      | no     | no            | no        |
| Opp Angles equal | yes    | yes       | yes     | 1 pair | yes           | no        |
| lines of symm    | 4      | 2         | 2       | 1      | 0             | 0         |
| Order rot symm   | 4      | 2         | 2       | 1      | 2             | 0         |

### Answers to Chapter 19 (page 233)

1. (a) AB (b) OA, OB, OC (c) circumference
2. (a) 48 cm (b) 22.5 m
3. 62.8 m
4. (a) 44 mm (b) 138.16 mm
5. (a) 204.1 cm (b) 40.82 m
6. 94.2 cm
7. check drawing
8. check drawing

### Answers to Chapter 20 (page 240)

1. check drawing
2. (a)  $64 \text{ cm}^2$  (b)  $384 \text{ cm}^2$
3. (a) (b) check drawing
4. check drawing
5. check drawing
6.  $880 \text{ cm}^2$
7. check drawing



one possibility

