

Answers

Chapter 1 Revising and improving

1.1 Warm-up revision

- 1 (a) 500 (b) 230
 (c) 500 (d) 600
 (e) 240 (f) 60
 (g) 1000 (h) 250
 (i) 400
- 2 (a) 300 300 300 $118 + 182 = 300$
 (b) 685 695 $875 - 170 = 705$ 715
 (c) 568 570 572 $220 + 354 = 574$
- 3 (a) 4 4 equal right 90
 (b) 8 6 12
 (c) 6 square
- 4 (a) (i) kg (ii) hours (iii) minutes g
 (b) (i) 1 (ii) 77 (iii) 120 (iv) 458
 (v) 52 2 366
- 5 (a) 969 (b) 128 (c) 994
- 6 (a) $788 + 126 = 914$
 (b) $593 - 384 = 209$
- 7 (a) 10 180 (b) 20 6 120
- 8 6 6

1.2 Multiplication tables up to 12×12

x	1	2	3	4	5	6	7	8	9	10	11	12
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

- 2 $8 \times 11 = 88$, $11 \times 8 = 88$, $8 \times 11 = 88$,
 $10 \times 11 = 110$, $11 \times 10 = 110$,
 $10 \times 11 = 110$,
 $11 \times 12 = 132$, $12 \times 11 = 132$,
 $11 \times 12 = 132$
- 3 (a) 12 8 16
 (b) 11 4 22
 (c) 12 9 36
- 4 (a) 60 (b) 66 (c) 99
 (d) 12 (e) 55 (f) 77
 (g) 144 (h) 3 (i) 110
 (j) 10 (k) 132 (l) 72
- 5 $121 \div 11 = 11$ (stickers)

- 6 $11 \times 12 = 132$ (pages)
 $308 - 132 = 176$ (pages)
- 7 $11 \times 12 = 132$ (cards)
- 8 26 or 136

1.3 Multiplication and division (1)

- 1 (a) 534 (b) 89
 (c) 2848 (d) 1465
 (e) 109 r 6 (f) 58
- 2 (a) > (b) >
 (c) < (d) <
 (e) > (f) <
 (g) = (h) >
 (i) <
- 3 (a) 906 (b) 195 (c) 3829
- 4 $36 \times 2 + 25 \times 2 = \text{£}122$
- 5 Mo runs the fastest Yee is the slowest

Price	Number of pens												
£18	0	0	0	0	1	1	1	2	2	3			
£9	0	2	4	6	0	2	4	0	2	0			
£6	9	6	3	0	6	3	0	3	0	0			

- 7 (a) $785 \times 9 = 7065$
 (b) $822 \div 3 = 274$
- ### 1.4 Multiplication and division (2)
- 1 (a) 780 (b) 155
 (c) 70 (d) 59 r 6
- 2 (a) 3601 (b) 2900
 (c) 426
- 3 (a) $1000 \div 8 = 125$
 (b) $721 \div 7 = 103$
 (c) $5 \times 465 = 2325$
 (d) $65 \times 8 + 9 = 529$
- 4 (a) 1520 ml 2280 ml
 (b) 30 years
 (c) (i) 800 m (ii) 5 laps (iii) 200 m

- 5 10 footballs 30 basketballs
- 6 $125 \times 5 = 625$ or $175 \times 5 = 875$

1.5 Problem solving (1)

- 1 159 storybooks
- 2 39 years old
- 3 (a) $34 + 34 \times 3 = 136$
 $34 \times (3 + 1) = 136$
 (b) $34 \times 3 - 34 = 68$
 $34 \times (3 - 1) = 68$
- 4 96 stamps
- 5 (a) 1440 trees
 (b) 20 trees
- 6 289 willow, 576 maple

1.6 Problem solving (2)

- 1 (a) $32 + 32 \times 4 = 160$ (sheep)
 (b) $19 \times 4 = 76$ (pencils)
- 2 (a) $357 \times 3 + 357 = 1428$
 (b) $357 \div 3 + 357 = 476$
- 3 8000 kg
- 4 180 km
- 5 (a) 480 (b) 240 (c) 1080
- 6 42 pupils in the library, 30 pupils in the PE hall
- 7 23 m

1.7 Fractions

- 1 (a) $\frac{1}{2}$ (b) $\frac{1}{8}$ (c) $\frac{1}{4}$
- 2 (a) $\frac{2}{4}$ or $\frac{1}{2}$ (b) $\frac{1}{3}$
 (c) $\frac{1}{4}$ (d) $\frac{5}{6}$
- 3 (a) 2 wedges shaded
 (b) 1 triangle shaded
 (c) 2 parts shaded
 (d) 5 triangles shaded
- 4 (a) circle 3 ◆ (b) circle 6 ▲
- 5 (a) 10 (b) 4 (c) 15
- 6 (a) $\frac{1}{8}$ (b) $\frac{1}{4}$ (c) $\frac{2}{3}$
 (d) $\frac{2}{6}$ (e) $\frac{1}{4}$ (f) $\frac{2}{10}$ or $\frac{1}{5}$

Chapter 1 test

- 1 (a) 600 (b) 360 (c) 90
 (d) 144 (e) 2 (f) 4
 (g) 4 (h) 10 (i) 132
 (j) 50 (k) 80 (l) 10
- 2 (a) 112 (b) 321 (c) 855
 (d) 180 (e) 12 r 5 (f) 40 r 5
- 3 (a) 172 (b) 257 (c) 573
 (d) 7800 (e) 16 (f) 453

- 4 (a) 864
 (b) (i) 50 (ii) 700 (iii) 240
 (c) (i) < (ii) > (iii) <
 (iv) > (v) > (vi) <
 (d) (i) cm (ii) g (iii) cm
 (iv) kg (v) m (vi) pounds
 (vii) m cm (viii) km
 (e) $\frac{1}{6}$
 (f) 9
 (g) $\frac{23}{34}$
 (h) 3
 (i) $\frac{1}{5}$ m $\frac{4}{5}$
- 5 two wedges shaded, five parts shaded,
 one triangle shaded
- 6 $\frac{1}{4}$ $\frac{2}{8}$ $\frac{1}{4}$ $\frac{3}{12}$ $\frac{1}{2}$ $\frac{4}{8}$
- 7 (a) 4 cuts
 (b) 36 metres
 (c) 60 metres
 (d) 67 words
 (e) (i) £182 (ii) £54 (iii) £164

Chapter 2 Numbers to and beyond 1000 and their calculation

2.1 Knowing numbers beyond 1000 (1)

- 1 (a) 174 (b) 24 (c) 6
 (d) 36 (e) 112 (f) 3
 (g) 4 (h) 0 (i) 63
 (j) 6 (k) 174 (l) 27
- 2 (b) one thousand three hundred and forty-four 1000 300 40 4
 (c) sixteen thousand nine hundred and eighty three 16 000 900 80 3
 (d) six thousand seven hundred 6000 700 0 0
 (e) six thousand eight hundred and fifty-three 6000 800 50 3
- 3 (a)

TTh	Th	H	T	O
0	1	0	0	1

 (b)

TTh	Th	H	T	O
0	9	2	1	2

 (c)

TTh	Th	H	T	O
0	7	0	3	5

 (d)

TTh	Th	H	T	O
1	0	5	3	5
- 4 (a) 4 0
 (b) 50 500 5000
 (c) ones tens
 (d) thousands hundreds ten thousands
 (e) thousands 7 ones four thousand and seventy-five 3076
- 5 (a) B (b) C (c) B (d) C
- 6 2000 1100 1010 1001
- 7 answers may vary

2.2 Knowing numbers beyond 1000 (2)

- 1 (a) 4 5 6 8 9 10
 (b) 40 50 60 80 90 100
 (c) 400 500 600 800 900 1000
 (d) 4000 5000 6000 8000 9000 10 000
 (e) 100 125 150 200 225 250
- 2 (a) (i) 1737 1739 (ii) 9998 10 000
 (iii) 4105 4107 (iv) 5999 6001
 (b) (i) 3890 3910 (ii) 1540 1560
 (iii) 7799 7819 (iv) 5990 6010
 (c) (i) 2557 2757 (ii) 4405 4605
 (iii) 7690 7890 (iv) 5900 6100
 (d) (i) 67 2067 (ii) 8222 10 222
 (iii) 3050 5050 (iv) 5000 7000
- 3 (a) 237 238
 (b) 1075 1100
 (c) 6500 8500
 (d) 6000 5000
 (e) 2000 1500 1000 500 0
- 4 (a) 3280 4990 5010
 (b) 6000
 (c) 1000 6000
 (d) 8880 6540 6000 5010 4990 3280 1000
- 5 (a) 2035 (b) 20 356
 (c) 8653 (d) 86 532
- 6 1300 301 300
- ### 2.3 Rounding numbers to the nearest 10, 100 and 1000
- 1 A = 3700 B = 4200 C = 5900 D = 7100
 E = 8000 F = 8500
- 2 numbers correctly marked on the number line
- 3 (a) A D E (b) B C F

- 4 (a) ✓ (b) X (c) X
 (d) ✓ (e) ✓ (f) ✓
- 5 (a) 40 10 90 500 200 2020 4090 10 000
 (b) 100 300 1000 1500 3000 5100 8100 10 000
 (c) 0 0 1000 2000 5000 7000 8000 10 000
- 6 45 46 47 48 49
- 7 6995 6996 6997 6998 6999 7001 7002 7003 7004

2.4 Addition with 4-digit numbers (1)

- 1 (a) (i) 7346 (ii) 3175
 (b) (i) 8586 (ii) 7768
 (c) (i) 5533 (ii) 4598
 (d) (i) 7642 (ii) 9001
- 2 (a) 13 257 (b) 6664 (c) 9878
- 3 answers may vary
- 4 (a) 1554 + 1000 = 2554
 (b) 5528 - 1000 = 4528
 (c) 2139 + 3324 = 5463
- 5 (a) four (b) five (c) five four

2.5 Addition with 4-digit numbers (2)

- 1 (a) 4734 (b) 7431 (c) 7320
 (d) 6087 (e) 8716
- 2 2477 5532 4849 8611 5722 10 000
- 3 (a) × 4004 (b) × 9152 (c) × 1506
- 4 (a) 57 279 (b) 14 333
- 5 (a) 2500 m
 (b) £5460
 (c) 5865 kilowatts
- 6 (a) 3922 + 3833 = 7755
 (b) 96 + 2622 = 2718
 (c) 5378 + 27 922 = 33 300

2.6 Subtractions with 4-digit numbers (1)

- 1 (a) (i) 4303 (ii) 3601
 (b) (i) 2242 (ii) 2623
 (c) (i) 3021 (ii) 4509
 (d) (i) 5381 (ii) 5439
- 2 (a) 3434 (b) 2831 (c) 1093
 (d) 3295 (e) 2165 (f) 5573
- 3 answers may vary
- 4 (a) $5032 - 3415 = 1617$
 (b) $9418 - 2280 = 7138$
- 5 (a) $9550 - 7450 = 2100$ (grams)
 (b) $7450 - 2100 = 5350$ (grams)

2.7 Subtraction with 4-digit numbers (2)

- 1 (a) 3232 (b) 2371
 (c) 872 (d) 4168
 (e) 2139 (f) 5987
- 2 (a) $\times 2346$ (b) $\times 3291$ (c) $\times 609$
- 3 7204 4296 2181 136 3178 439
- 4 (a) $7597 - 4059 = 3538$
 (b) $8400 - 7195 = 1205$
 (c) $6783 - 435 = 6348$

- 5 (a) 22 062 (b) 2509
- 6 (a) 7803 km
 (b) The flight to Beijing on the second day was longer. It was longer by 2575 km. The total distance he flew in the two days was 13 747 km.
- 7 (a) 9 (b) 8

2.8 Estimating and checking answers using inverse operations

- 1 (a) 6000 (b) 2200
 (c) 8700 (d) 8800
 (e) 5200 (f) 900
 (g) 6700 (h) 220
 (i) 800 (j) 3100
 (k) 2000 (l) 9020

2

	2132	5522	4590	6705	1848	8999
Nearest 10	2130	5520	4590	6710	1850	9000
Nearest 100	2100	5500	4600	6700	1800	9000
Nearest 1000	2000	6000	5000	7000	2000	9000

- 3 (a) 3700 3701 (b) 8700 8740
 (c) 9900 9877 (d) 3400 3356
 (e) 300 326 (f) 10 000 10 025
- 4 (a) 5000 5425 (b) 10 000 9986
 (c) 9000 9768 (d) 2000 2211
 (e) 4000 3634 (f) 9000 8458
- 5 (b) No. It is $5548 + 4371 = 9919$
 $9919 - 5548 = 4371$
 (c) No. It is $9208 - 3257 = 5951$
 $5951 + 3257 = 9208$ or
 $9208 - 5951 = 3257$
 (d) No. It is $8399 + 699 = 9098$
 $9098 - 699 = 8399$ or
 $9098 - 8399 = 699$
 (e) $2391 + 1641 = 4032$. Yes, it checks.
 (f) No. It is $10\ 000 - 4075 = 5925$
 $5925 + 4075 = 10\ 000$ or
 $10\ 000 - 5925 = 4075$
- 6 (a) 3475 litres 6985 litres
 (b) (i) No, it is not sufficient.
 (ii) £600 more is needed to purchase the two items.
- 7 (a) 2688 or 2868 or 2886
 (b) 6288

Chapter 2 test

- 1 (a) 5000 (b) 8000 (c) 9990
 (d) 7000 (e) 3000 (f) 3060
 (g) 90 (h) 3000 (i) 8220
- 2 A = 1700 B = 2200 C = 3900 D = 5100
 E = 6000 F = 6500
- 3 (a) 520 525 (b) 805 905
 (c) 8000 9000 (d) 125 100
 (e) 48 60 72
- 4 (a)

Th	H	T	O
3	0	1	9
- (b)

Th	H	T	O
7	9	0	9
- (c)

Th	H	T	O
1	5	3	5
- (d)

Th	H	T	O
1	0	0	0
- 5 (a) 6750 (b) 1083 (c) 8200
 (d) 2651 (e) 3089
- 6 (a) 6000 5888 (b) 6000 6488
 (c) 6000 5216 (d) 4000 4491
- 7 (a) $10\ 000 - 1000 = 9000$
 (b) $8569 - 3378 = 5191$
 (c) $8288 + 3009 = 11\ 297$
- 8 (a) £17 608 (b) £1508
- 9 3726 pupils
- 10 (a) The flight from Rome to London on the first day is longer. It is longer by 277 km.
 (b) 2591 km

Chapter 3 Multiplying by a 2-digit number

3.1 Multiplying whole tens by a 2-digit number

1 (a)

4
40
400

 $\times 12 =$

48
480
4800

(b)

450
45
4500

 $\times 7 =$

3150
315
31 500

- (c) 48 480
 (d) 315 3150
 (e) 48 4800
 (f) 315 31 500
- 2 (a) 22 (b) 45 (c) 270
 (d) 220 (e) 450 (f) 2700
 (g) 2200 (h) 4500 (i) 27 000
 (j) 2200 (k) 4500 (l) 27 000
- 3 (a) 3780 (b) 3000 (c) 1000
 (d) 340 (e) 1260 (f) 900
 (g) 2250 (h) 1440 (i) 9000
 (j) 100 (k) 2640 (l) 11 9000
 (m) 6500 (n) 3200 (o) 660
 (p) 32 400
- 4 (a) $12 \times 60 = 720$
 (b) $800 \times 25 = 20\ 000$
- 5 (a) = (b) > (c) > (d) <
- 6 (a) 204 180 24 204
 (b) 364 350 14 364
- 7 (a) X (b) ✓ (c) ✓ (d) ✓ ✓
- 8 (b) 3200 (c) 37 200 (d) 9800
- 9 Method 1: $24 \times 50 + 24 \times 70 = 2880$ (pence)
 Method 2: $24 \times (50 + 70) = 2880$ (pence)
- 10 (b) 60 (c) 50

3.2 Multiplying a 2-digit number by a 2-digit number (1)

- 1 (a) 160 (b) 80 (c) 240 (d) 15
 (e) 240 (f) 120 (g) 360 (h) 15
 (i) 330 (j) 165 (k) 495 (l) 15
- 2 (a) 300 360 260 52 312
 (b) 1800 2000 1860 62 1922
- 3 (a) $48 \times 25 = 12 \times 4 \times 25 = 12 \times 100 = 1200$
 (b) $48 \times 25 = 40 \times 25 + 8 \times 25 = 1000 + 200 = 1200$
 (c) $48 \times 25 = 50 \times 25 - 2 \times 25 = 1250 + 50 = 1200$

- 4 (a) $19 \times 21 = 19 \times 20 + 19 \times 1 = 380 + 19 = 399$
 (b) $33 \times 77 = 33 \times 70 + 33 \times 7 = 2310 + 231 = 2541$
 (c) $51 \times 63 = 50 \times 63 + 1 \times 63 = 3150 + 63 = 3213$ (answer may vary)
- 5 (a) $11 \times 55 = 605$
 (b) $550 - 19 \times 19 = 189$
- 6 A = 4 B = 2 C = 8 D = 5 E = 7

3.3 Multiplying a 2-digit number by a 2-digit number (2)

- 1 (a) 315 (b) 371 (c) 160
 (d) 150 (e) 1052 (f) 3
 (g) 42 000 (h) 19 (i) 880
 (j) 2000 (k) 660 (l) 750
- 2 3120 240 5 288 6 3120
- 3 (a) 286 (b) 7425 (c) 3024
- 4 (a) In the column calculation, 44×50 is 2200, not 220; the correct answer is 2420.
 (b) 37×10 is 370, not 37; the correct answer is 444.
 (c) 26×90 is 2340, not 234; the correct answer is 2548.
- 5 (a) $89 \times 89 = 7921$
 (b) $99 \times 99 = 9801$
- 6 (a) $99 \times 33 + 99 = \pounds 3366$
 (b) $2 \times 53 \times 2 = 212$ (pupils)
- 7 (a) 121 (b) 121 (c) 144
 (d) 132 (e) 169 (f) 143
 (g) 196 (h) 154 (i) 225
 (j) 165 (k) 256 (l) 176
 (m) 289 (n) 187 (o) 324
 (p) 198 (q) 361 (r) 209

3.4 Multiplying a 3-digit number by a 2-digit number (1)

- 1 (a) 375 (b) 625
 (c) 875 (d) 500
 (e) 375 (f) 625
 (g) 750 (h) 1125
 (i) 500 (j) 750
 (k) 1000 (l) 1375
- 2 (a) 4000 6000 4480 672 5152
 (b) 4600 6900 4580 229 4809
- 3 27 170 2090 2508 27 170
- 4 (a) 5 40
 (b) 357 9 357 80
- 5 (a) 3597 (b) 8192 (c) 54 945

- 6 (a) $222 \times 55 = 12\ 210$
 (b) $99 \times 999 = 98\ 901$
- 7 $329 + (329 \times 12 - 300) = \pounds 3977$
- 8 (a) 150 seconds
 (b) 514

3.5 Multiplying a 3-digit number by a 2-digit number (2)

- 1 (a) 28 (b) 30 (c) 39
 (d) 280 (e) 300 (f) 390
 (g) 2800 (h) 30 000 (i) 39 000
- 2 (b) 100 880 100 88 000
 (c) 10 6720 10 67 200
- 3 (b) 45 000 (c) 3200 (d) 32 000
- 4 (a) A (b) D (c) C (d) A
- 5 (a) 19 893 (b) 13 376 (c) 630 000
 (d) 8112 (e) 19 162 (f) 35 552
- 6 (a) $200 \times 12 \times 12 = 28\ 800$
 (b) $160 \times 50 + 50 = 8050$
- 7 $32 \times 20 = 640$ (pupils), $1000 > 640$, Yes.
 $1000 - 640 = 360$ (seats)

3.6 Dividing 2-digit or 3-digit numbers by tens

- 1 (a) 40 (b) 30 (c) 120
 (d) 70 (e) 4 (f) 3
 (g) 12 (h) 7
- 2 (a) 3 (b) 7 (c) 5
 (d) 9 (e) 6 (f) 4
- 3 (b) 9 9 9 2 9 2
 (c) 3 4 3 3 3 15
 (d) 8 9 8 8 8 16
- 4 (b) 7 r 5 (c) 7 r 12 (d) 5 r 10
 (e) 9 r 5 (f) 7 r 36
- 5 (a) $292 \div 60 = 4\text{ r } 52$
 (b) $99 \div 20 = 4\text{ r } 19$

6

Rows	10	20	30	40	60	80
Number of pupils in each row	72	36	24	18	12	9

- 7 (a) 80 (b) Aliya Joe
 (c) 66 (d) 5

3.7 Practice and exercise

- 1 (a) 480 (b) 17 (c) 0
 (d) 240 (e) 340 (f) 105
 (g) 1010 (h) 8
- 2 (a) 6237 (b) 10 016 (c) 852 600
 (d) 85 r 1 ($85 \times 30 + 1 = 2551$)
- 3 (a) 7810 (b) 640
 (c) 324 (d) 10

- 4 (a) $480 + 480 \div 6 = 560$
 (b) $(565 + 19) \div 50 = 11 \text{ r } 34$
- 5 (a) $25 \times 30 + 25 \times 6 = 900$,
 $20 \times 36 + 5 \times 36 = 900$,
 $25 \times 6 \times 6 = 900$
 (b) 5
 (c) 35
 (d) 10 120 10 12
 (e) 4
- 6 (a) 120 (b) 6000
 7 $300 \div 5 = 60$ (trees)

Chapter 3 test

- 1 (a) 500 (b) 3330 (c) 47 r 10 (d) 10 (e) 9600 (f) 1000 (g) 50 (h) 70 (i) 375 (j) 11 (k) 1250 (l) 6
- 2 (a) 8901 (b) 2024000 (c) 9840 (d) 19 552 (e) 141 r 26 (f) 338 r 19
- 3 (a) 2254 (b) 3130 (c) 4500 (d) 1818 (e) 30 (f) 2925
- 4 (a) 4 (b) 1099 (c) three hundreds 2 (d) 6 1–5 (e) 4
- 5 (a) D (b) C (c) C (d) B
- 6 (a) $10 \times 12 \times 12 = 1440$ (eggs),
 $1440 \div 80 = 18$ (days)
 (b) $3680 \times 3 = 11\,040$ (kg)
 (c) $(730 + 350) \div 20 = 54$ (tons)
 (d) $10 - 200 \div 100 = \text{£}8$
 $85 - 500 \div 100 = \text{£}80$

Chapter 4 Addition and subtraction of fractions

4.1 Fractions in hundredths

- 1 (a) $\frac{1}{2}$ (b) $\frac{3}{10}$ (c) $\frac{1}{100}$ (d) $\frac{3}{200}$
- 2 (b) 10 squares shaded
 (c) 1 square shaded
 (d) 89 squares shaded
- 3 lines drawn from $\frac{1}{3}$ to $\frac{9}{27}$ to $\frac{10}{30}$, $\frac{9}{10}$ to $\frac{90}{100}$ to $\frac{18}{20}$, $\frac{2}{5}$ to $\frac{40}{100}$ to $\frac{80}{200}$
- 4 fractions correctly marked on the number lines.
- 5 (a) $\frac{7}{100}$ $\frac{9}{100}$ $\frac{11}{100}$ $\frac{13}{100}$
 (b) $\frac{41}{100}$ $\frac{51}{100}$ $\frac{61}{100}$ $\frac{71}{100}$
 (c) $\frac{85}{100}$ $\frac{81}{100}$ $\frac{77}{100}$ $\frac{73}{100}$
- 6 (a) $\frac{20}{200}$ (b) $\frac{38}{200}$ (c) $\frac{60}{200}$
 (d) $\frac{42}{200}$ (e) $\frac{40}{200}$
- 7 (a) $\frac{1}{100}$ (b) 50 5

4.2 Addition and subtraction of fractions (1)

- 1 (a) 7 3 4 7 $\frac{7}{10}$ $\frac{7}{10}$
 (b) 16 7 9 16 $\frac{16}{17}$
 (c) adding unchanged
- 2 (a) $\frac{4}{7}$ (b) $\frac{3}{5}$ (c) $\frac{13}{20}$ (d) $\frac{22}{43}$
 (e) $\frac{60}{77}$ (f) $\frac{460}{800}$ (g) $\frac{8}{9}$ (h) $\frac{26}{32}$
- 3 (a) $13 \frac{8}{9}$ (b) $\frac{5}{6} 1$ (c) $\frac{5}{12}$
- 4 (a) $\frac{5}{20} + \frac{7}{20} = \frac{12}{20}$ (b) $\frac{11}{19} + \frac{3}{19} = \frac{14}{19}$
- 5 $\frac{9}{10}$
- 6 (a) $\frac{2}{10}$ (b) $\frac{7}{10}$ (c) $\frac{2}{22}$ (d) 40 6
- 7 $\frac{1}{6} + \frac{1}{30}$ $\frac{1}{10} + \frac{1}{90}$ $\frac{1}{51} + \frac{1}{2550}$

- 2 (a) $\frac{1}{6}$ (b) $\frac{6}{14}$ (c) $\frac{9}{30}$
 (d) $\frac{13}{72}$ (e) $\frac{50}{300}$ (f) $\frac{2}{25}$
 (g) $\frac{38}{65}$ (h) 21 (i) 7

- 3 (a) $\frac{11}{15} + \frac{3}{15} = \frac{14}{15}$
 (b) $\frac{8}{20} - \frac{4}{20} = \frac{4}{20}$
 (c) $\frac{7}{7} - \frac{3}{7} = \frac{4}{7}$
- 4 (a) $\frac{1}{10}$ (b) $\frac{9}{10}$ (c) 2 (d) $\frac{5}{8}$
- 5 No, there were no more pieces left for Dad. (Hint: $\frac{3}{4}$ equals $\frac{6}{8}$, 2 units of $\frac{1}{8}$ equals $\frac{2}{8}$, $\frac{6}{8} + \frac{2}{8} = 1$)

4.4 Fun with exploration – ‘fraction wall’

- 1 answer may vary
- 2 (a) < (b) > (c) <
 (d) = (e) < (f) >
- 3 (a) 1 (b) $\frac{2}{12}$ (c) $\frac{6}{7}$
- 4 (a) $\frac{2}{3}$, $\frac{6}{9}$, $\frac{8}{12}$ (b) $\frac{4}{6}$, $\frac{6}{9}$, $\frac{8}{12}$
 (c) $\frac{6}{8}$, $\frac{9}{12}$, $\frac{12}{16}$ (d) $\frac{2}{8}$, $\frac{3}{12}$, $\frac{4}{16}$
- 5 $\frac{1}{16}$

Chapter 4 test

- 1 (a) 84 (b) 63 (c) 36 (d) 320 (e) 500 (f) 82 (g) $\frac{3}{7}$ (h) $\frac{23}{23}$ or 1 (i) $\frac{8}{16}$ (j) $\frac{6}{13}$ (k) $\frac{3}{5}$ (l) $\frac{11}{16}$
- 2 (a) $\frac{6}{8}$ (b) $\frac{2}{11}$ (c) $\frac{4}{14}$ (d) $\frac{17}{25}$ (e) $\frac{43}{74}$ (f) $\frac{4}{14}$
- 3 (a) 30 squares shaded (b) 77 squares shaded
- 4 (a) 6 32 (b) 2 20 (c) 5 (d) $\frac{50}{100}$ or $\frac{1}{2}$ (e) $7 \frac{1}{11}$ (f) $\frac{1}{100}$ (g) 5 4
- 5 (a) C (b) B
- 6 (a) $\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$
 (b) $\frac{79}{80} - \frac{50}{80} + \frac{30}{80} = \frac{59}{80}$
- 7 (a) $1200 \times 4 \times 2 = 9600$ (books)
 (b) $\frac{5}{22}$ (c) 750 g

Chapter 5 Consolidation and enhancement

5.1 Multiplication and multiplication table

1	×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12	
2	2	4	6	8	10	12	14	16	18	20	22	24	
3	3	6	9	12	15	18	21	24	27	30	33	36	
4	4	8	12	16	20	24	28	32	36	40	44	48	
5	5	10	15	20	25	30	35	40	45	50	55	60	
6	6	12	18	24	30	36	42	48	54	60	66	72	
7	7	14	21	28	35	42	49	56	63	70	77	84	
8	8	16	24	32	40	48	56	64	72	80	88	96	
9	9	18	27	36	45	54	63	72	81	90	99	108	
10	10	20	30	40	50	60	70	80	90	100	110	120	
11	11	22	33	44	55	66	77	88	99	110	121	132	
12	12	24	36	48	60	72	84	96	108	120	132	144	

- 2 (a) $56 \div 7 \times 8 = 56$ $8 \times 7 = 56$
 $56 \div 7 = 8$ $56 \div 8 = 7$
 (b) $88 \times 11 = 88$ $11 \times 8 = 88$
 $88 \div 8 = 11$ $88 \div 11 = 8$
 (c) $60 \times 5 = 12$ $12 \times 5 = 60$
 $60 \div 5 = 12$ $60 \div 12 = 5$
 (d) $10 \times 6 = 10$ $10 \times 6 = 60$
 $60 \div 6 = 10$ $60 \div 10 = 6$
 (e) $8 \times 8 \times 9 = 72$ $9 \times 8 = 72$ $72 \div 8 = 9$
 $72 \div 9 = 8$
 (f) $11 \times 11 \times 12 = 132$ $12 \times 11 = 132$
 $132 \div 11 = 12$ $132 \div 12 = 11$
- 3 (a) 4 3 12 (b) 9 6 54
 (c) 6 11 66 (d) 5 7 35
 (e) 8 12 96
- 4 $40 \times 2 = 80$ $40 \times 3 = 120$
- 5 (a) 12 outfits
 (b) 20 combinations
- 6 12 ways

5.6 Roman numerals to 100

- 1 (a) 11:52 a.m. or 11:52 p.m. (b) 2:49 a.m. or 2:49 p.m. (c) 9:30 a.m. or 9:30 p.m.

I	II	III	IV	V	VI	VII	VIII	IX	X
XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
XXI	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII	XXIX	XXX
XXXI	XXXII	XXXIII	XXXIV	XXXV	XXXVI	XXXVII	XXXVIII	XXXIX	XL
XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L
LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	LX
LXI	LXII	LXIII	LXIV	LXV	LXVI	LXVII	LXVIII	LXIX	LXX
LXXI	LXXII	LXXIII	LXXIV	LXXV	LXXVI	LXXVII	LXXVIII	LXXIX	LXXX
LXXXI	LXXXII	LXXXIII	LXXXIV	LXXXV	LXXXVI	LXXXVII	LXXXVIII	LXXXIX	XC
XCI	XCII	XCIII	XCIV	XCV	XCVI	XCVII	XCVIII	XCIX	C

- 3 lines drawn from V to 5, L to 50, I to 1, X to 10 and C to 100.
- 4 (a) XLIII (b) LV (c) XII (d) XCVIII (e) LXXVII (f) LX (g) IX (h) LXXXIV
- 5 (a) 6 (b) 52 (c) 79 (d) 9 (e) 95 (f) 65 (g) 19 (h) 70

7 400 ways

5.2 Relationship between addition and subtraction

- 1 (a) (i) 130 50 50 (ii) 100 53 53 47 (iii) 160 160 230 (iv) 100 100 190 90
 (b) Sum Difference Difference
 Minuend Addition
- 2 (a) - - (b) - +
 (c) $868 - 756$ $868 - 112$
 (d) ● + ▲ ■ - ▲
- 3 (b) 235 (c) 101 (d) 265
- 4 (a) $789 - 126 = 663$
 (b) $120 - 60 = 60$
- 5 (a) X (b) ✓
- 6 $278 - 63 = 215$

5.3 The relationship between multiplication and division

- 1 (a) (i) 110 22 22 (ii) 12 120 12 (iii) 1000 8 125 (iv) 140 35 35
 (b) Product Dividend Quotient
 (c) dividend (✓)
- 2 (b) 12 (c) 108 (d) 15 (e) 9 (f) 2760
- 3 (a) $768 \div 8 = 96$
 (b) $(288 - 4) \div 2 = 142$
 (c) $840 \div 30 = 28$
- 4 $360 \div 30 \times 32 = 384$
- 5 divisor: $210 \div (9 + 1) = 21$
 dividend: $210 - 21 = 189$

5.4 Multiplication by 2-digit numbers

- 1 (a) 880 (b) 45 (c) 750 (d) 30 (e) 90 (f) 2040 (g) 2 (h) 20 (i) 360 (j) 20 (k) 168 (l) 16
- 2 (a) 6048 (b) 87 (c) 16200
- 3 (a) 4428 (b) 1200
 (c) $82 \times 54 = 4428$ $25 \times 48 = 1200$
- 4 $(25 + 19) \times 12 = £528$
- 5 $(9720 - 90 \times 12) = £8640$
- 6 (a) 900 60 (b) four 840 1260 1260 (c) four
- 7
- $$\begin{array}{r} 17 \\ \times 64 \\ \hline 68 \\ 102 \\ \hline 1088 \end{array}$$

5.5 Practice with fractions

- 1 (a) $\frac{2}{8}$ or $\frac{1}{4}$ (b) $\frac{4}{8}$ or $\frac{1}{2}$ (c) $\frac{6}{12}$ or $\frac{1}{2}$
- 2 (a) 3 squares shaded (b) 4 squares shaded (c) 5 squares shaded
- 3 (a) $\frac{1}{12}$ (b) 6 (c) $\frac{17}{23}$ (d) $\frac{5}{6}$ or $\frac{8}{9}$
 (e) 7 (f) 4 (g) 2 (h) 9 8
 (i) infinitely many (j) 5
- 4 (a) $\frac{3}{4}$ (b) $\frac{68}{250}$ (c) $\frac{12}{50}$ (d) $\frac{6}{7}$
- 5 $\frac{99}{100}$ $\frac{1}{2}$ $\frac{49}{100}$ $\frac{1}{10}$ $\frac{1}{100}$
- 6 (a) $\frac{1}{8}$ $\frac{1}{8}$ $\frac{5}{8}$ (b) 5 (c) $\frac{18}{20}$
 (d) 4 18 27 8 16

- 6 (a) Chapter 1: 24 Chapter 2: 30 pages Chapter 3: 6 pages
 (b) 60
- 7 (a) ✓ (b) ✗ (c) ✓

Chapter 5 test

- 1 (a) 57 (b) 130 (c) 180
 (d) 440 (e) 720 (f) 75
 (g) 13 (h) 30 (i) 32
- 2 (a) 7307 (b) 739 (c) 9
 (d) 55 (e) 1339 (f) 2
- 3 (a) 3978 (b) 26 180 (c) 27
- 4 (a) 429 (b) 3600
 (c) 37 (d) 310
- 5 (a) 0 (b) $\frac{24}{35}$ (c) $\frac{2}{9}$
- 6 (a) 6 (b) 14 (c) 97
 (d) 42 (e) 55 (f) 79
- 7 (a) inverse subtrahend difference
 minuend
 (b) 32 (c) 3760 (d) 9000
 (e) 4 (f) 4 5
- 8 (a) $220 - 96 = 124$
 (b) $(5 \times 8) \div 4 = 10$
 (c) $(408 + 65) \times 2 = 946$
- 9 (a) $42 \times 5 = 210$ (pages)
 (b) $100 - 38 - 53 = 9$ (years old)
 $100 - 38 = 62$ (years old)
 (c) $98 \times 6 + 606 = \text{£}1194$
 (d) $36 - 36 \div 4 = 27$ (balls)
 (e) $288 - (69 - 4) = 223$
 (f) 6 combinations

Chapter 6 Introduction to decimals

6.1 Decimals in life

- 1 (a) 112.7 1.8 12.75 2.72
 (b) 105 106 106 112 113 113
 (c) 1 2 2
 (d) 12 13 13
 (e) 2 3 3
- 2 (a) 13 20
 (b) 7 0
 (c) 21 68
- 3 1.25 m or 1.52 m
 34.5 kg or 35.4 kg or 43.5 kg or 45.3 kg
 or 53.4 kg or 54.3 kg

6.2 Understanding decimals (1)

- 1 (a) $\frac{1}{10}$ $\frac{9}{10}$ whole
 (b) $\frac{3}{10}$ $\frac{4}{10}$ $\frac{3}{10}$
 (c) < > =
 (d) 0.1 0.2 $\frac{3}{10}$
 (e) decimals 0.1 zero point one
 0.01 zero point zero one
 0.001 zero point zero zero one
- 2 0.25 0.5 0.75
- 3 (a) 0.7 zero point seven
 (b) 0.16 zero point one six
 (c) 0.256 zero point two five six
 (d) 0.8 zero point eight
 (e) 0.205 zero point two zero five
 (f) 0.95 zero point nine five
- 4 (a) $\frac{5}{10}$ (b) $\frac{3}{100}$ (c) $\frac{24}{100}$
 (d) $\frac{1}{1000}$ (e) $\frac{207}{1000}$ (f) $\frac{9}{10}$

- 5 (b) $\frac{62}{100}$ 0.62 zero point six two
 (c) $\frac{275}{1000}$ 0.275 zero point two seven five
 (d) $\frac{30}{100}$ 0.30 or 0.3 zero point three zero or zero point three
- 6 Shafiq $200 \div 10 \times 4 = 80$ (ml)
 $200 \div 10 \times 5 = 100$ (ml)
- 7 12

6.3 Understanding decimals (2)

- 1
- | Whole number part | | | | Decimal point | Decimal part | | |
|-------------------|---|---|---|---------------|--------------|----|-----|
| Th | H | T | O | . | Ts | Hs | Ths |
| 6 | 7 | 3 | 5 | . | 4 | 8 | 2 |
- 2 (a) 0.4 0.5 0.6 0.7 0.8 0.9
 (b) 5.14 5.15 5.16 5.17 5.18 5.19
 (c) 8 7.5 7 6.5 6 5.5
- 3 (a) 0.4 0.7 0.9 (b) 1
 (c) 1 1 (d) 10 100 1000
 (e) 10 10
- 4 (a) whole number decimal
 (b) 6 7
 (c) 0.2 0.05 0.128
 (d) tens ones tenth hundredths thousandths
 (e) ones ones tenths one hundredths hundredths
- 5 (a) A (b) B (c) C (d) D
- 6 (a) 0.065 (b) 601.03 (c) 400.004
- 7 93.1 to 93.9 (answers may vary)

6.4 Understanding decimals (3)

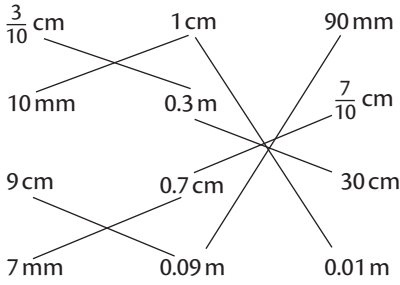
- 1 (a) 2040.1 (b) 1.43 (c) 15.045
 (d) mixed decimals: 5.11 3.03, pure decimals: 0.41 0.8
 (e) 0.12 0.21
- 2 (b) 4 4 8
 (c) 8 2 5 7
 (d) 0.1 0.01
- 3 (a) ✗ (b) ✓ (c) ✗ (d) ✗
 (e) ✓ (f) ✗ (g) ✓
- 4 (a) 639.18
 (b) 200
 (c) 0.126 0.621 10.26
 (d) $100 \frac{1}{10}$
 (e) 0.9 1.01
 (f) one hundred

6.5 Understanding decimals (4)

- 1 (a) ten point seven nine
 (b) twenty two point zero two three
 (c) nine point three zero four
 (d) zero point zero one zero one
 (e) fourteen point nine zero
 (f) three hundred point three zero three
 (g) 0.17
 (h) 60.98
 (i) 20.002
 (j) 100.375
 (k) 0.8060
 (l) 100.900
- 2 1 decimal place: 0.9, 24.8, 80.9, 100.9
 2 decimal places: 54.32, 0.31, 46.73, 0.18, 9.45, 5.77, 0.07
 3 decimal places: 12.976, 1.244, 7.201

- 3 (a) 9 0.1 0.9
 (b) 99 0.01 0.99
 (c) 999 0.001 0.999
 (d) 0.94 0.96
 (e) two hundredths 4 hundredths
 tens 4 tens 1000
- 4 answers may vary
- 5 (a) $\frac{112}{100}$ $1\frac{12}{100}$ (b) $\frac{5833}{100}$ $58\frac{33}{100}$
- 6 99.09

6.6 Understanding decimals (5)

- 1 1.7 4.4 3 0.01 0.03 $\frac{3}{100}$
- 2 
- 3 (a) 2.1 cm 1 cm (b) 0.13 cm
- 4 sides correctly measured and added to get the perimeter
- 5 $(530 + 50) \times 2 = 1160$ (ml)
- 6 (a) $\frac{6}{10}$ 0.6 $\frac{8}{1000}$ 0.008
 (b) 3004.0908
 (c) 1.1
 (d) 0.25

6.7 Understanding decimals (6)

- 1 (a) 8 721 (b) 20.220
 (c) 215.95 (d) 1020.061
 (e) 8.03 (f) 1000
 (g) 2793 (h) 400.004 mixed
 (i) zero point seven zero seven pure
 (j) 9
- 2 (a) C A D B (b) C
 (c) B (d) C (e) C
- 3 96.829

6.8 Comparing decimals (1)

- 1 (a) numbers correctly marked on the number line
 (b) 7.7 0.4
 (c) Yes, the further the numbers away from the original point, the greater the number is
 (d) $7.7 > 5.8 > 4.5 > 2.1 > 0.4$
- 2 whole number greater tenths tenths
- 3 (a) > (b) > (c) <
 (d) < (e) < (f) >
- 4 (a) $9.09 > 0.99 > 0.909 > 0.9$
 (b) $22.202 > 22.20 > 22.02 > 22.002$
- 5 (a) Ethan is the tallest.
 (b) Marvin is the heaviest.
- 6 Asha
- 7 0 0 6 - 9
- 8 $0.24 < 0.26 < 0.42 < 0.46 < 0.62 < 0.64$

6.9 Comparing decimals (2)

- 1 (a) > (b) > (c) <
 (d) < (e) > (f) >

- 2 (a) 2 (b) 5 (c) 5 (d) 8
 (e) 10 (f) 3 (g) 5 5
- 3 lines drawn from 1.6 to 2, 212.9 to 213, 1.9 to 2, 213.1 to 213, 0.3 to 0, 2.5 to 3.
- 4 (a) $2\text{ m} < 2.04\text{ m} < 2.4\text{ m} < 2.44\text{ m}$
 (b) $0.58\text{ kg} < 0.59\text{ kg} < 5.8\text{ kg} < 5.9\text{ kg}$
- 5 Thea
- 6 11 35 15 7 111 1000
- 7 Person A: 21.5 kg Person B: 21.46 kg
 Person C: 21.52 kg Person D: 21.38 kg

6.10 Properties of decimals

- 1 all three lines are the same length
 (a) = =
 (b) end unchanged
- 2 left circle: 3.90, 300.00, 1.400
 right circle: 10.005, 0.103, 100, 20.002
- 3 (a) 600.06 (b) 3.5 (c) 700
 (d) 13.9 (e) 303.33 (f) 10.1
- 4 (a) 1.400 (b) 5.040 (c) 8.000
 (d) 30.400 (e) 9.400 (f) 10.000
- 5 (a) < (b) > (c) =
 (d) > (e) = (f) =
 (g) < (h) = (i) =
 (j) <
- 6 (a) C (b) C (c) D
 (d) B (e) C
- 7 0.6 0.600
 37.0 37.00 37.000
 19.9 19.90
- 8 $\frac{1}{1000} < 0.1021 < 0.112 < 0.120 < 1.1$
- 9 C = 0.03
 B is a pure decimal with three decimal places between 0.021 ~ 0.028.
 D is a pure decimal with three decimal places between 0.022 ~ 0.029.

Chapter 6 test

- 1 (a) 0.29 zero point two nine two pure 29 0.71
 (b) third second
 (c) 0.57
 (d) 94
 (e) 0 3 7
 (f) 1.2 mixed 1 2
 (g) ones ones thousandths thousandths
 (h) 1000 $\frac{1}{10}$
 (i) 10.99
 (j) 200.02 hundredths 200.020
- 2 (a) 0.25 (b) 0.5 (c) 0.75
 (d) 0.1 (e) 0.17 (f) 0.999
- 3 (a) $\frac{3}{10}$ (b) $\frac{1}{4}$ (c) $\frac{7}{100}$
 (d) $\frac{21}{100}$ (e) $\frac{3}{4}$ (f) $\frac{191}{1000}$

4

Decimal numbers	Can some zeros be dropped off without changing its value? (Yes or No)	If the answer is yes, write the number after dropping the zeros
0.7040	Yes	0.704
7.000	Yes	7
68.0100	Yes	68.01
200.060	Yes	200.06
0.007	No	N/A
230.0900	Yes	230.09

- 5 (a) D (b) B (c) A (d) D

- 6 (a) X (b) X (c) X
 (d) ✓ (e) X
- 7 (a) 0.36 (b) 0.04
 (c) 110.00 (d) 1.60 or 1.6
 (e) 3.04 (f) 0.90 or 0.9
- 8 (a) 0.550 0.505 0.5 0.055
 (b) $0.0054\text{ km} < 5\text{ km} < 5.04\text{ km} < 5.40\text{ km}$
- 9 16 0 10 120
- 10 (a) 0.135, 0.153, 0.315, 0.351, 0.513, 0.531
 (b) 5.013, 5.031, 5.103, 5.301, 5.130, 5.310
 (c) 10.35, 10.53, 30.15, 30.51, 50.13, 50.31
- 11 Joe