Answers

Topic 1 Getting ready

Revising knowledge from previous years is an important starting point for the new year. This gives students confidence and an interest to learn more and gives the teacher a better understanding of where each child is in their progress.

Number concepts and computation

Page 2

1 Telling the time, writing the date, buying a snack

2 Sport: sides of the field
Preparing food: measuring ingredients
Shopping: working out costs

3 **a** 9089, 2006, 1098, 345

b Fraction

c $\frac{5}{9} = \frac{10}{18} = \frac{15}{27}$

d 1098

e 345, 9089. They have an odd number in the ones place, a number that is not exactly divisible by 2.

f 2572, 2574

g 9089: 9 thousands, 8 tens, 9 ones

4 **a** 876 = 800 + 70 + 6

b 2346 = 2000 + 300 + 40 + 6

5 **a** 29, 36, 43

b 65, 59, 53

c 56, 28, 14

Page 3

6	**a**	5	**b**	4	**c**	4
7	**a**	6	**b**	20	**c**	20
8	**a**	60	**b**	540		
	c	240	**d**	249		
	e	260	**f**	200		

9 **a** 234 + 567
200 + 500 = 700
30 + 60 = 90
4 + 7 = 11
700 + 90 + 11 = 801

b 2347 + 5009
2000 + 5000 = 7000
300 + 0 = 300
40 + 0 = 40
7 + 9 = 16
7000 + 300 + 40 + 16 = 7356

c 1299 – 554
1200 – 500 = 700
90 – 50 = 40
9 – 4 = 5
700 + 40 + 5 = 745

d 3203 – 1416
2000 – 1000 = 1000

1100 – 400 = 700
90 – 10 = 80
13 – 6 = 7
1000 + 700 + 80 + 7 = 1787

e 234 × 5
200 × 5 = 1000
30 × 5 = 150
4 × 5 = 20
1000 + 150 + 20 = 1170

f 264 ÷ 3 = 88

10 **a** 2000 + 1000 = 3000
2341 + 1408 = 3749

b 2000 – 1000 = 1000
1987 – 1235 = 752

c 2000 – 1000 = 1000
2000 – 1209 = 791

11 **a** $\frac{1}{6} + \frac{3}{6} = \frac{4}{6}$

b $\frac{4}{7} + \frac{2}{7} - \frac{3}{7} = \frac{3}{7}$

c $\frac{1}{4} + \frac{7}{16}$
$= \frac{4}{16} + \frac{7}{16}$
$= \frac{11}{16}$

12 **a** False 1345 + 1 < 1356

b False 9800 ÷ 9800 > 0

c True

Problem-solving

13 **a** $1000 + $1000 = $2000
$1470 + $968 = $2438
Total cost of both rings is $2 438.

b $1470 – $968 = $502
The ruby ring is $502 cheaper than the diamond ring.

c $968 × 3 = $2904
The shop will receive $2904 for the sale of three ruby rings.

d $968 ÷ 2 = $484
They will each pay $484 for the ruby ring.

Geometry and measurement

Page 4

1 decade, leap year, year, month, week, day, hour, minute, second

2 Square

3 **a** 36°C

b 3°C

c 98°C

4 **a** Student's drawing

b 3 + 3 + 6 + 6 = 18 cm

5 4 centimetres

6 b: 2:45 a: 4:40 e: 6:50 c: 9:55 d: 10:35

Statistics

Page 5

1 **a**

Characteristics of ball	Yellow	Blue	Green
Large	𝍸 𝍸 II	𝍸 I	𝍸 III
Small	IIII	𝍸 I	𝍸 𝍸

b One circle = one ball

Yellow	4 yellow balls
Blue	6 blue balls
Green	10 green balls

c Student's drawing using the following data on their bar graphs:

Yellow	12
Blue	6
Green	8

2 **a** Lemonade sales in one week

b Friday

c Wednesday

d 34 glasses

Topic 2 Number sense (1)

Page 6

Learning to count in a higher number range is important as it helps students with number recognition, how to round off a number, comparing numbers and place value. Work carefully through this section and make sure the students understand the concepts and are careful to not make careless errors.

A Counting and place value

Page 8

1 **a** 4723 **b** 12 309

c 25 474 **d** 163 412

e 307 289 **f** 999 999

2 **a** 3507 = 3000 + 500 + 7

b 12 089 = 10 000 + 2000 + 80 + 9

c 30 689 = 30 000 + 600 + 80 + 9

d 95 125 = 90 000 + 5000 + 100 + 20 + 5

Page 9

3 **a** 5338 **b** 58 943

c 93 671 **d** 83 893

e 94 725 **f** 89 639

4 **a** 500 **b** 50 000

c 5000 **d** 50 000

e 5 **f** 50

5 **a** 3556 **b** 16 000

c 6865 **d** 23 460

e 23 560 **f** 21 700

Problem-solving

6 **a** 27 834, 4089, 31 708, 55 402, 39 495, 37 407, 38 405

b For example: 53 712, 43 983, 33 214, 43 685, 73 140

Investigate

7 **a** 6384, 6843, 6348, 6834, 6438, 6483
8364, 8643, 8346, 8634, 8436, 8463

b 6384, 8364, 4368, 6348, 4386, 8346

Counting on and counting back

Page 10

1 **a** 12 000, 11 900, 11 800, 11 700, 11 600

b 18 350, 19 350, 20 350, 21 350, 22 350

c 15 500, 16 000, 16 500, 17 000, 17 500

d 16 250, 14 250, 12 250, 10 250, 8250

2

a	1310	**b**	1325
c	1360	**d**	1370
e	1375	**f**	1400
g	9100	**h**	9200
i	9350	**j**	9550
k	9950	**l**	10 000
m	15 100	**n**	15 200
o	15 450	**p**	15 800
q	15 950		

What did you learn?

1 For example: 56 429

2 For example: 30 280

3 11 015

4 87 544

B Compare and order numbers

Page 11

1 **a** 9127, 9187, 9287, 9712, 9812

b 14 114, 14 141, 14 414, 14 441

c 81 188, 81 818, 88 818, 88 881

d 43 219, 45 000, 71 992, 78 106

Page 12

2 **a** St Kitts and Nevis
Grenada
St Vincent and the Grenadines
Barbados
Antigua and Barbuda
St Lucia
Dominica

b Antigua and Barbuda > Barbados

c St Kitts and Nevis < Antigua and Barbuda

d It has a population in the hundred thousands, whereas Barbados is only in the ten thousands.

Problem-solving

3 **a** Largest: 75 321
Smallest: 12 357

b Largest: 76 211
Smallest: 11 267

c Largest: 99 644
Smallest: 44 699

d Largest: 76 321
Smallest: 12 367

e Largest: 87 432
Smallest: 23 478

f Largest: 97 210
Smallest: 10 279

What did you learn?

1 75 321, 76 211, 76 321, 87 432, 97 210, 99 644

2 44 699, 23 478, 12 367, 12 357, 11 267, 10 279

C Rounding and estimating

Page 14

1 **a** 1600 **b** 5600
c 3500 **d** 19 900
e 12 500

2 **a** 1090 **b** 70
c 12 600 **d** 3720
e 200

3 **a** 24 000 **b** 97 000
c 14 000 **d** 77 000
e 12 000

4 5890, 6023, 5500, 6499

5 **a** True **b** True
c True **d** True

6 **a** $39 + 42 \approx 80$
b $499 - 67 \approx 430$
c $32\,876 - 12\,909 \approx 20\,000$
d $29 + 187 \approx 230$
e $148 - 9 + 24 \approx 130$
f $363 + 98 \approx 500$
g $234 + 123 + 97 \approx 400$
h $32 \times 12 \approx 300$
i $1823 - 1015 \approx 1000$
j $2876 + 3087 \approx 6000$
k $58 \times 22 \approx 1\,200$
l $2344 \div 9 \approx 200$

Problem-solving

7 **a** 125 km
b 225 km
c 75 km × 2 = 150 km
150 km × 3 = 450 km

8 **a** 4000 + 6000 + 7000 = 17 000
b 17 000 × 10 = $170 000

What did you learn?

1 **a** 12 000 **b** 10 000
c 1000 **d** 35 000

2 It is closer to 39 000.
39 000 as it is a closer number to 38 830 than 38 500, so it is more accurate.

Topic 2 Review

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Key ideas and concepts

1 ten thousands
2 digit
3 place value
4 increase
5 thousand
6 estimated

Think, talk, write …

1 **a** thirty-six thousand sixteen
b 56 089 < 56 908

2 Examples: population; crowd attendance of a sports event; number of children at school

Quick check

1 **a** 14 999
b 25 000
c 80 000

2 **a** 7
b 5000
c 70 000
d 0

3 **a** 23 456 = 20 000 + 3000 + 400 + 50 + 6
32 906 = 30 000 + 2000 + 900 + 6
76 400 = 70 000 + 6000 + 400
23 509 = 20 000 + 3000 + 500 + 9
b 23 456 < 23 509
c 23 456, 23 509, 32 906, 76 400
d 23 456, 23 509

4 **a** 603 + 715 + 986 ≈ 2 300
b 7899 – 5211 ≈ 3000
c 999 ÷ 2 ≈ 500
d 408 × 31 ≈ 12 000

5 (10 + 30) × 2 = 80 cm
(20 + 20) × 2 = 80 cm

Topic 3 Computation (1)

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Not only is it important for the students to be able to calculate answers mentally to speed their processing, it is also important for them to develop sound paper-and-pen calculations for larger numbers and to assist with problem solving. Make sure there are no misconceptions for the students.

A Mental strategies

Page 19

1	**a**	135	**b**	146
	c	161	**d**	740
	e	277	**f**	187
	g	288	**h**	358
	i	277	**j**	284
	k	198	**l**	318
	m	640	**n**	994
	o	371	**p**	460
	q	671	**r**	761
	s	412	**t**	463
2	**a**	77	**b**	76
	c	53	**d**	83
	e	71	**f**	87
	g	51	**h**	73
	i	17	**j**	36
	k	27	**l**	47
	m	15	**n**	132
	o	183	**p**	522
	q	212	**r**	592
	s	488	**t**	573

3 **a** **i** 131 km
ii 147 km
iii 140 km
iv 221 km

b 209 × 2 = 418 km

c H to D anti-clockwise = 111 km
H to D clockwise = 149 km
Anti-clockwise is shorter by 38 km.

d Clockwise A to D = 131 km
Anti-clockwise A to D = 129 km
It is 2 km further.

e 260 km

4 44 + 6 + 40 = 90 kg
40 + 20 + 30 = 90 kg
28 + 32 + 30 = 90 kg
18 + 32 + 40 = 90 kg
52 + 18 + 20 = 90 kg
32 + 52 + 6 = 90 kg

What did you learn?

1	**a**	52	**b**	803
	c	990	**d**	551
	e	4300	**f**	3900
	g	175	**h**	3233

B Addition

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1 **a** Estimate: 1000 + 200 = 1200
955 + 223 = 1178
900 + 200 = 1100

50 + 20 = 70
5 + 3 = 8
1100 + 70 + 8 = 1178

b Estimate: 2000 + 1000 = 3000
2345 + 1054 = 3399
2000 + 1000 = 3000
300 + 0 = 300
40 + 50 = 90
5 + 4 = 9
3000 + 300 + 90 + 9 = 3399

c Estimate: 6000 + 1000 = 7000
6330 + 1234 = 7564
6000 + 1000 = 7000
300 + 200 = 500
30 + 30 = 60
0 + 4 = 4
7000 + 500 + 60 + 4 = 7564

d Estimate:11 000 + 33 000 = 44 000
11 321 + 33 107 = 44 428
10 000 + 30 000 = 40 000
1000 + 3000 = 4000
300 + 100 = 400
20 + 0 = 20
1 + 7 = 8
40 000 + 4000 + 400 + 20 + 8 = 44 428

e Estimate: 4000 + 90 000 = 94 000
4105 + 89 235 = 93 340
0 + 80 000 = 80 000
4000 + 9000 = 13 000
100 + 200 = 300
0 + 30 = 30
5 + 5 = 10
80 000 + 13 000 + 300 + 30 + 10 = 93 340

f Estimate: 5000 + 26 000 = 31 000
4640 + 25 608 = 30 248
0 + 20 000 = 20 000
4000 + 5000 = 9000
600 + 600 = 1200
40 + 0 = 40
0 + 8 = 8
20 000 + 9000 + 1200 + 40 + 8 = 30 248

g Estimate: 11 000 + 10 000 = 21 000
11 160 + 9725 = 20 885
11 000 + 9000 = 20 000
100 + 700 = 800
60 + 20 = 80
0 + 5 = 5
20 000 + 800 + 80 +5 = 20 885

h Estimate: 4000 + 1000 = 5000
4281 + 1110 = 5391
4000 + 1000 = 5000
200 + 100 = 300

80 + 10 = 90
1 + 0 = 1
5000 + 300 + 90 + 1 = 5391

i Estimate: 7000 + 11 000 = 18 000
7342 + 11 013 = 18 355
7000 + 11 000 = 18 000
300 + 0 = 300
40 + 10 = 50
2 + 3 = 5
18 000 + 300 + 50 + 5 = 18 355

j Estimate: 400 + 11 000 = 11 400
423 + 11 024 = 11 447
0 + 11 000 = 11 000
400 + 0 = 400
20 + 20 = 40
3 + 4 = 7
11 000 + 400 + 40 + 7 = 11 447

k Estimate: 30 000 + 8000 = 38 000
29 300 + 8489 = 37 789
29 000 + 8000 = 37 000
300 + 400 = 700
0 + 89 = 89
37 000 + 700 + 89 = 37 789

l Estimate: 600 + 90 000 = 90 600
562 + 87 417 = 87 979
0 + 87 000 = 87 000
500 + 400 = 900
60 + 10 = 70
2 + 7 = 9
87 000 + 900 + 70 + 9 = 87 979

2 **a** 12 + 60 + 13 = 85
b 123 + 23 + 4000 = 4146
c 241 + 2 400 + 10 000 = 12 641
d 12 400 + 238 + 20 000 = 32 638
e 32 + 400 + 32 000 + 12 = 32 444
f 50 + 500 + 50 200 = 50 750

3 **a** 437 + 876 = 1313
b 398 + 1 209 = 1607
c 5427 + 2686 = 8113
d 12 987 + 4 567 = 17 554
e 5412 + 19 234 = 24 646
f 28 435 + 32 876 = 61 311
g 18 796 + 54 321 = 73 117
h 23 987 + 12 450 = 36 437
i 24 999 + 54 230 = 79 229
j 45 076 + 32 987 = 78 063

4 **a** 12 345 + 14 098 = 26 443
b 29 452 + 35 806 = 65 258
c 1 345 + 12 304 + 13 098 = 26 747
d 45 678 + 10 121 = 55 799
e 13 454 + 13 454 = 26 908

Problem-solving

5 For example:
20 401 + 10 040 +4200 = 34 641
15 621 + 12 020 + 7000 = 34 641
19 111 + 11 510 + 4020 = 34 641
10 000 + 22 321 + 2320 = 34 641
13 194 + 11 214 + 10 233 = 34 641

6 (8564 × 2) + (9950 × 2)
= 17 128 + 19 900
= 37 028 m

What did you learn?

1 426 + 6 543 + 18 000 + 405 = 25 374

2 13 243 + 68 681 = 81 924

3 4 309 + 19 + 32 456 + 5 = 36 789

4 33 793 + 26 134 = 59 927

C Subtraction

Page 22

1 **a** Estimate: 700 – 300 = 400
689 – 325 = 364

b Estimate: 800 – 300 = 500
827 – 304 = 523

c Estimate: 1 000 – 900 = 100
999 – 888 = 111

d Estimate: 1000 – 1000 = 0
1400 – 1200 = 200

e Estimate: 3200 – 200 = 300
3225 – 224 = 3001

f Estimate: 8000 – 4000 = 4000
8234 – 4317 = 3917

g Estimate: 24 000 – 19 000 = 5000
24 245 – 19 321 = 4924

h Estimate: 30 000 – 20 000 = 10 000
33 098 – 20 450 = 12 648

i Estimate: 40 000 – 20 000 = 20 000
42 512 – 24 755 = 17 757

j Estimate: 80 000 – 40 000 = 40 000
76 312 – 35 980 = 40 332

k Estimate: 100 000 – 10 000 = 90 000
99 765 – 12 098 = 87 667

l Estimate: 49 000 – 46 000 = 3000
48 982 – 45 897 = 3085

2 **a** 13 000 – 3003 = 9997

b 1010 – 101 = 909

c 8848 – 5892 = 2956

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3 **a** 98 511, 65 656, 33 559, 24 518, 22 634, 16 571, 12 920

b 98 511 – 65 656 = 32 855

c 65 656 – 24 518 = 41 138

d 41 089 – 16 571 = 24 518 (Kingstown)

e 65 656 – 22 634 = 43 022 more people

4 Paired work

What did you learn?

1 86 581 – **47 924** = 38 657
2 **70 973** – 45 728 = 25 245
3 22 656 – **10 902** = 11 754
4 98 580 – **69 096** = 29 484
5 **60 112** – 38 795 = 21 317
6 36 921 – **16 976** = 19 945

D Mixed problems with addition and subtraction

Page 24

1 (13 453 + 8765) – 237
= 22 218 – 237
= 21 981

2 $25 000.000 – $23 456.00
= $1544.00

3 (13 753 + 18 348) – 2367
= 32 101 – 2367
= 29 734 trees are left

4 $28 617.00 – $26 732.00
= $1 885.00 more money was in her account at the end of the year.

What did you learn?

(2309 + 1306) + (407 – 298)
= 3615 + 109
= 3724 passengers are on board the cruise ship for the return cruise

Topic 3 Review

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Quick check

1 **a** 3437
b 21 829
c 12 847
d 23 402

2 **a** 3437 + 12 847 = 16 284
b 3437 + 21 829 + 12 847 + 23 402 = 61 515
c (12 847 + 23 402) – (3437 + 21 829)
= 36 249 – 25 266
= 10 983

3 **a** 10 991 + 234 + 4 568 = 15 793
b 32 819 + 43 214 = 76 033
c 12 345 + 23 145 = 35 490
d 11 285 – 9873 = 1412
e 29 876 – 14 388 = 15 488
f 64 000 – 39 453 = 24 547

4 Estimate: 10 000 + 20 000 + 10 000 + 10 000 = 50 000
Actual total: 11 270 + 22 701 + 14 688 + 13 431 = 62 090
62 090 – 50 000 = 12 090

5 For example:
11 000 + 1005 + 340 = 12 345
9543 + 1237 + 1565 = 12 345

8143 + 2107 + 2095 = 12 345
6947 + 1359 + 4039 = 12 345

6 For example: 19 367 – 16 491 = 2876

Topic 4 Shape and space (1)

Page 26

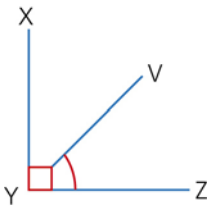
Students will continue to improve their knowledge and understanding of lines and angles, 2-D shapes and introduce congruency. Work carefully through this section, revisiting concepts and terms already taught.

A Lines and angles

Page 29

1 **a–b** Student's drawings

c



2
A = right angle B = obtuse angle
C = acute angle D = acute angle
E = right angle F = obtuse angle
G = right angle H = obtuse angle
J = acute angle K = obtuse angle

3 Student's drawings

4 **a** Right angles **b** Acute angles
c No, as the angles inside a triangle all add up to 180°.

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5
a Parallel **b** Intersecting (eventually)
c Perpendicular **d** Intersecting
e Parallel **f** Intersecting
g Parallel **h** Perpendicular
i Perpendicular **j** Perpendicular

6 **a–c** Student's drawings
(Make sure the students add arrow symbols showing the lines are parallel in part **c**.)

7 **a**
ABCD: rectangle
MNOP: square
GHIJKL: hexagon

b
AB ‖ DC AD ‖ BC
MN ‖ PO MP ‖ NO
GH ‖ KJ GL ‖ JI
LK ‖ HI

c
AD perpendicular to DC
AB perpendicular to BC
MN perpendicular to MP
NO perpendicular to PO

B 2-D shapes

Page 32

1 **a** It has no straight sides. **b** It has no straight sides.
c It is an open shape. **d** It is a 3-D shape.

2 **a** Right-angled triangle **b** Decagon
c Pentagon **d** Square
e Rectangle **f** Acute-angled triangle
g Heptagon **h** Hexagon
i Octagon **j** Parallelogram

3 **a** A
b B and C **c** B and C

Problem-solving

4 Square or rhombus

5 **a** Jonella
b Both of the other angles will be acute angles.
c No, as the sum of all three angles needs to be 180°.

6 **a** 7 cm
b Blue circle = 14 cm
Purple circle = 6 cm

What did you learn?

1–4 Student's drawings

C Congruent shapes

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1 **a** A and B **b** A and B
c B and D **d** A and C

What did you learn?

1 Congruent
2 Not congruent
3 Not congruent

D Shapes around us

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1–2 Group work

What did you learn?

Examples:

1 Parallel: telephone wires; ladder rungs; roof planks
Perpendicular: telephone pole; bricks

2 Acute angle: tool box lid
Right angle: telephone pole; door and window frames
Obtuse angle: pitch of roof on building

3 Polygons: windows; door

4 Congruent shapes: windows; bricks

Topic 4 Review
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Quick check

1 **a** A: triangle B: octagon
C: hexagon D: heptagon
E: quadrilateral F: pentagon
G: heptagon H: triangle
I: hexagon J: pentagon
K: octagon L: quadrilateral

b H
c A, C, L
d B, D, G, I, J, K
e C and L
f I, K and L

2 Congruency is used to repeat the same pattern in the same colour.

Topic 5 Number sense (2)

Page 36

Making sense of numbers by learning different ways numbers can be written and understanding them will help the students to interact within their world better.

A Factors and multiples

Page 38

1 **a** False **b** True
c True **d** False
e True **f** True
g False **h** True

2 **a** Factors of 4: 1, 2, 4
Factors of 6: 1, 2, 3, 6
HCF: 2

b Factors of 12: 1, 2, 3, 4, 6, 12
Factors of 18: 1, 2, 3, 6, 9, 18
HCF: 6

c Factors of 10: 1, 2, 5, 10
Factors of 25: 1, 5, 25
HCF: 5

d Factors of 3: 1, 3
Factors of 8: 1, 2, 4, 8
HCF: 1

e Factors of 21: 1, 3, 7, 21
Factors of 49: 1, 7, 49
HCF: 7

f Factors of 12: 1, 2, 3, 4, 6, 12
Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30
HCF: 6

g Factors of 13:1, 13
Factors of 15: 1, 3, 5, 15
Factors of 17: 1, 17
HCF: 1

h Factors of 6: 1, 2, 3, 6

Factors of 10: 1, 2, 5, 10
Factors of 12: 1, 2, 3, 4, 6, 12
HCF: 2

i Factors of 25: 1, 5, 25
Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30
Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40
HCF: 5

3 **a** M4: 4, 8, 12, 16, 20
M10: 10, 20
LCM: 20

b M5: 5, 10, 15, 20, 25, 30
M6: 6, 12, 18, 24, 30
LCM: 30

c M4: 4, 8
M8: 8
LCM: 8

d M6: 6, 12, 18, 24, 30
M10: 10, 20, 30
LCM: 30

e M9: 9, 18, 27, 36
M12: 12, 24, 36
LCM: 36

f M8: 8, 16, 24, 32, 40
M20: 20, 40
LCM: 40

g M2: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
M4: 4, 8, 12, 16, 20
M5: 5, 10, 15, 20
LCM: 20

h M2: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30
M6: 6, 12, 18, 24, 30
M10: 10, 20, 30
LCM: 30

i M8: 8, 16, 24, 32, 40, 48, 56, 64, 72
M9: 9, 18, 27, 36, 45, 54, 63, 72
M12: 12, 24, 36, 48, 60, 72
LCM: 72

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Investigate

4 **a** 1

b 1, 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

c Every number from 1–100, with the exception of the square numbers, listed in **d**

d 1, 9, 16, 25, 49, 64, 81, 100

e 60, 72, 84, 90, 96 (they each have 12 factors)

Challenge

5 **a** 60 days on from 1 January: 1 March (non-leap year), or 29 February (leap year)

b 7 days

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6 **a** $50 = 2 \times 5 \times 5$

b $96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

7 **a** 25: 5×5
$25 = 5 \times 5$

b 30: 10×3; 5×2
$30 = 2 \times 3 \times 5$

c 18: 2×9; 3×3
$18 = 2 \times 3 \times 3$

d 44: 4×11; 2×2
$44 = 2 \times 2 \times 11$

e 84: 12×7; 3×4; 2×2
$84 = 2 \times 2 \times 3 \times 7$

f 64: 8×8; 2×4, 2×4; 2×2, 2×2
$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$

g 130: 13×10; 5×2
$130 = 2 \times 5 \times 13$

h 200: 20×10; 2×10, 2×5; 2×5
$200 = 2 \times 2 \times 2 \times 5 \times 5$

What did you learn?

1 F16: 1, 2, 4, 8, 16

2 M11: 11, 22, 33, 44, 55

3 F60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60
F80: 1, 2, 4, 5, 8, 10, 16, 20, 40, 80
HCF: 20

4 M60: 60, 120, 180, 240
M80: 80, 160, 240
LCM: 240

5 36: 6×6; 3×2, 3×2
$2 \times 2 \times 3$ v $3 = 36$
54: 6×9; 2×3, 3×3
$2 \times 3 \times 3 \times 3 = 54$

B Classifying numbers

Page 41

1 **a** 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219

b 32, 30, 28, 26, 24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2

c 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81

d 2, 3, 5, 7, 11

e 21, 22, 24, 25, 26, 27, 28, 30, 32, 33, 34, 35, 36, 38, 39

2 **a** False

b False

c True

d True

Problem-solving

3 72, 60, 64, 17, 49

What did I learn?

1 Look at the digit in the ones place. If it is 1, 3, 5, 7, or 9 then the number is odd.

2 A prime number has two factors: 1 and itself.

3 It is an even number. The only even number that is a prime number is 2.

C Roman numerals

Page 42

1 **a** 1: I, 2: II, 3: III, 4: IIII, 5: V, 6: VI, 7: VII, 8: VIII, 9: IX, 10: X, 11: XI, 12: XII

b Add the values of each letter before combining them. Add the values when letters of smaller values are to the right of a letter of greater value. Subtract the value when letters of smaller value are to the left of a letter of greater value.

2 **a** V **b** III

c VI **d** VII

e XII

3 **a** 11 **b** 9

c 2 **d** 5

e 7

Challenge

4 13: XIII, 14: XIV, 15: XV, 16: XVI, 17: XVII, 18: XVIII, 19: XIX, 20: XX

What did you learn?

1 9:00

2 7:30

3 12:45

Topic 5 Review

Page 43

Key ideas and concepts

1 Composite

2 Even

3 Factor

4 Highest common factor

5 Odd

6 Lowest common multiple

7 Prime

8 Multiples

9 Product of prime factors

Think, talk, write …

1 Clocks

2 It is the year it was made in Roman numerals. M stands for 1 000. 2 019 is MMXIX.

Quick check

1 **a** F24: 1, 2, 3, 4, 6, 8, 12, 24

b F21: 1, 3, 7, 21

c F13: 1, 13

d F36: 1, 2, 3, 4, 6, 9, 12, 18, 36

2 Only has 2 factors: 1 and 13.

3 HCF: 3

4 **a** M8: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80

b M12: 12, 24, 36, 48, 60, 72, 84, 96, 108, 120

c LCM: 24

5 **a** 2, 11, 23

b 8, 36, 40, 80, 100

c 25, 36, 49, 100

d II, VIII, XI

e $8 = 2 \times 2 \times 2$
$25 = 5 \times 5$
$36 = 2 \times 2 \times 3 \times 3$
$40 = 2 \times 2 \times 2 \times 5$
$49 = 7 \times 7$
$80 = 2 \times 2 \times 2 \times 2 \times 5$
$100 = 2 \times 2 \times 5 \times 5$

Problem-solving

6 24 weeks

Topic 6 Computation (2)

Page 44

It is important for the students to know their multiplication and division facts to speed up their accurate calculations of pen-and-paper long multiplication and division work. Take care to work slowly on this section and repeat the methods regularly to ensure the students understand what is expected of them.

A Revisit multiplication and division

Page 46

1	**a**	28	**b**	42
	c	72	**d**	8
	e	30	**f**	9
	g	8	**h**	6
	i	7	**j**	7
	k	45	**l**	100
	m	63	**n**	16
	o	18	**p**	12
	q	2	**r**	2
	s	4	**t**	5
	u	81	**v**	6
	w	9	**x**	7
2	**a**	2 r 4	**b**	4 r 6
	c	7 r 4	**d**	7 r 2
	e	13 r 1	**f**	7 r 5
	g	11 r 4	**h**	7 r 4
	i	8 r 4	**j**	8 r 1
	k	6 r 5	**l**	7 r 2

3 $2 \times 3 \times 7 = 42$
$3 \times 7 \times 8 = 168$
7×8 x $10 = 560$
$8 \times 10 \times 2 = 160$
$10 \times 2 \times 3 = 60$
$2 \times 7 \times 10 = 140$
$3 \times 8 \times 10 = 240$
$2 \times 3 \times 8 = 48$
$3 \times 7 \times 10 = 210$

4 **a** 10 sixes

b 8

c 9
d 12

5 **a** $7 \times 26 = 182$, $26 \times 7 = 182$, $182 \div 7 = 26$, $182 \div 26 = 7$
b $5 \times 39 = 195$, $39 \times 5 = 195$, $195 \div 39 = 5$, $195 \div 5 = 39$
c $234 \div 9 = 26$, $234 \div 26 = 9$, $26 \times 9 = 234$, $9 \times 26 = 234$
d $950 \div 19 = 50$, $950 \div 50 = 19$, $19 \times 50 = 950$, $50 \times 19 = 950$

6 $120 \div 4 = 30$, $120 \div 30 = 4$, $30 \times 4 = 120$, $4 \times 30 = 120$
$41 \times 7 = 287$, $7 \times 41 = 287$, $287 \div 7 = 41$, $287 \div 41 = 7$
$588 \div 6 = 98$, $6 \times 98 = 588$, $98 \times 6 = 588$, $588 \div 98 = 6$
$4 \times 147 = 588$, $147 \times 4 = 588$, $588 \div 4 = 147$, $588 \div 147 = 4$

Page 47

7 **a** $41 \times 7 = 287$
b $120 \div 4 = 30$
c $588 \div 98 = 6$
d $588 \div 147 = 4$

8 A: $30 \times 4 = 120$ cm^2
B: $50 \times 30 = 1\,500$ cm^2
C: $160 \times 2 = 320$ cm^2

9 $120 \div 24 = 5$ cm
$96 \div 16 = 6$ cm
$153 \div 3 = 51$ cm

Problem-solving

$10 \times 5 = 50$ press ups
$9 \times 5 = 45$ sit ups
$8 \times 5 = 40$ step ups
$7 \times 5 = 35$ star jumps
$6 \times 5 = 30$ stretches

What did you learn?

1 $a = 48$; $b = 8$; $c = 6$
2 Division
3 6×9, as it is the inverse operation of division.

B Multiplication

Page 49

1 **a** $25 \times 20 = 500$ **b** $68 \times 40 = 2720$
c $80 \times 30 = 2400$ **d** $124 \times 30 = 3720$
e $112 \times 40 = 4480$ **f** $47 \times 20 = 940$
g $64 \times 10 = 640$ **h** $700 \times 30 = 21\,000$

2 **a** $234 \times 65 = 15\,210$

×	60	5	
200	12 000	1000	13 000
30	1800	150	1950
4	240	20	260
			15 210

b $220 \times 48 = 10\,560$

×	40	8	
200	8000	1600	9600
20	800	160	960
0	0	0	0
			10 560

c $378 \times 14 = 5292$

×	10	4	
300	3000	1200	4200
70	700	280	980
8	80	32	112
			5292

d $297 \times 70 = 20\,790$

×	70	0	
200	14 000	0	14 000
90	6300	0	6300
7	490	0	490
			20 790

e $534 \times 75 = 40\,050$

×	70	5	
500	35 000	2 500	37 500
30	2100	150	2250
4	280	20	300
			40 050

f $98 \times 322 = 31\,556$

×	90	8	
300	27 000	2400	29 400
20	1800	160	1960
2	180	16	196
			31 556

g $903 \times 66 = 59\,598$

×	60	6	
900	54 000	5400	59 400
0	0	0	0
3	180	18	198
			59 598

h $12 \times 350 = 4\,200$

×	10	2	
300	3000	600	3600
50	500	100	600
0	0	0	0
			4200

Problem-solving

3 $368 \times 24 = 8\,832$
There are 8 832 bottles in 368 crates.

4 $\$245.00 \times 12 = \$2\,940.00$
They will save $2 940.00 in a year.

5 **a** $576 \times 480 = 276\,480$ grams

The mean mass carried by each truck is 276 480 grams.

b $(576 \times 2) \times 14$
$= 1152 \times 14$
$= 16\,128$
16 128 bananas are carried by 14 trucks.

6 $(52 - 3) \times 321$
$= 49 \times 321$
$= 15\,729$
They will make 15 729 T-shirts in a year.

7 $(4 \times 5) \times 960$
$= 20 \times 960$
$= 19\,200$
She will take 19 200 steps to and from school in four weeks.

8 $(11 \times 2) \times 275 = 3\,025$
She will travel 6050 km.

What did you learn?

1 $41 \times 24 = 984$

2 $65 \times 14 = 910$

3 $158 \times 18 = 2844$

4 $124 \times 34 = 4216$

C Division

Page 51

1

a	369 ÷ 3 = 123	**b**	484 ÷ 4 = 121
c	204 ÷ 4 = 51	**d**	690 ÷ 6 = 115
e	324 ÷ 6 = 54	**f**	808 ÷ 8 = 101
g	516 ÷ 6 = 86	**h**	432 ÷ 8 = 54
i	261 ÷ 2 = 130 r 1	**j**	362 ÷ 3 = 120 r 2
k	481 ÷ 8 = 60 r 1	**l**	8 435 ÷ 7 = 1 205

2

a Estimate: 900 ÷ 20 = 45
868 ÷ 15 = 57 r 13

b Estimate: 600 ÷ 20 = 30
636 ÷ 21 = 30 r 6

c Estimate: 900 ÷ 50 = 18
906 ÷ 52 = 17 r 22

d Estimate: 500 ÷ 20 = 25
456 ÷ 16 = 28 r 8

e Estimate: 1000 ÷ 40 = 25
987 ÷ 41 = 24 r 3

f Estimate: 800 ÷ 30 = 26 r 20
843 ÷ 27 = 31 r 6

g Estimate: 1000 ÷ 10 = 100
1152 ÷ 12 = 96

h Estimate: 7000 ÷ 10 = 700
6578 ÷ 11 = 598

3

a 3412 ÷ 15 = 227 r 7

b 6712 ÷ 31 = 216 r 47

c 9873 ÷ 18 = 548 r 9

d 1235 ÷ 24 = 51 r 11

e 2346 ÷ 21 = 111 r 15

f 1987 ÷ 23 = 86 r 9
g 96 713 ÷ 17 = 5689
h 28 856 ÷ 12 = 2404 r 8
i 10 821 ÷ 19 = 569 r 10
j 79 778 ÷ 14 = 5698 r 6
k 20 095 ÷ 36 = 558 r 7
l 79 073 ÷ 12 = 6589 r 5

Problem-solving

4 360 ÷ 15 = 24
There were 24 rows.

5 3885 ÷ 37 = 105
One bag of cement is 105 kg.

6 **a** 14 365 ÷ 60 = 239 r 25
It will take 239 hours and 25 minutes.

b (14 365 – 5414) ÷ 60
= 8951 ÷ 60
= 149 r 11
149 hours have passed.

What did you learn?

1 1520 ÷ 10 = 152
2 495 ÷ 5 = 99
3 336 ÷ 16 = 21
4 7750 ÷ 25 = 310

D Mixed problems

Page 52

1 (168 × 46) ÷ 29
= 7728 ÷ 29
= 266 r 14

2 263 × 45 = 11 835

3 2462 ÷ 80 = 30 r 62
He will fill 30 boxes and have 62 left over.

4 320 × 100 = 32 000
Andy has 32 000 points.

5 23 × 10 = 230 cm
23 × 230 = 5290 cm^2

6 (35 × 9) × 2
= 315 × 2
= 630
They will have collected $630.

7

1 265 ÷	
12	105 r 5
14	90 r 5
15	84 r 5
16	**79 r 1**
18	70 r 5
20	63 r 5

8 856 × 48 = 41 088 km

She will have flown 41 088 km in 48 weeks.

9 $5256 \times 23 = 120\,888$
$120 888.00 is the total cost.

10 $(768 + 25) \div 32$
$= 793 \div 32$
$= 24$ r 25
25 buses are needed to transport everyone.

What did you learn?

1 $165 \times 52 = 8580$
It will cost the fisherman $8580 to moor his boat in the harbour for the year.

2 $358 \times 24 = 8592$
He received $8592.00 for his fish sales.

Topic 6 Review

Page 53

Think, talk, write …

1 **a** 132, 12
b 1 584
c 132, 12
d 132, 12

Quick check

1

Calculation	
27×332	Lucien
495×18	Fabian
722×12	Veronique
119×21	Veronique
495×68	None

2 **a** $235 \div 12 = 19$ r 7
b $423 \div 18 = 23$ r 9
c $12\,456 \div 23 = 541$ r 13

Problem-solving

3 $5\,326 \div 18 = 295$ r 16
296 tables will be needed.

4 $2\,000 \div 19 = 105$ r 5
You can cut 105 lengths of 19 m.

Test yourself (1)

Page 54

1 **a** 29 603
b thousand
c 800
d 60 000

2 **a** $72\,518 = 70\,000 + 2000 + 500 + 10 + 8$
b **i** $56\,390 = 50\,000 + 6000 + \mathbf{300} + 90$
ii $36\,419 = 3 \times 10\,000 + 6 \times 1000 + \mathbf{4} \times 100 + 1 \times \mathbf{10} + 9 \times 1$

3 11 000

4 801, 8013, 8113, 80 999, 81 000
5 57 + 38 = 95
The other number is 95.
6 216 – 65 = 151
There are 151 plums in the box.
7 James: 47
Jim: 47 × 2 = 94
David: 47 + 13 = 60
47 + 94 + 60 = 201
They have 201 crayons altogether.
8 480 ÷ (6 × 20)
= 480 ÷ 120
= 4
It will take him 4 hours to earn $480.
9 3458 – 1567 = 1891
The other number is 1891.
10 Estimate: 2000 + 600 = 2600
11 9:00
12 Acute

Page 55
13 Student's drawing
14 b
15 Square
16 Rectangle
17 Student's drawing
18 … they are the same size, angles are equal and the sides are the same.
19 **a** 2, 7 **b** 18
c 12 **d** 0
20 **a** 36 = 2 × 2 × 3 × 3 **b** 5
c 8 **d** 24
e 12
21 77 × 40 = 3080
22 143 ÷ 11 = 13 times
23 63 ÷ 15 = 4 r 3.
5 buses are needed to take 63 children on a tour.
24 XI

Topic 7 Measurement (1)

Page 56
Working out mass, capacity and length using metric units and working out conversions thereof is a valuable life skill for the students to acquire. Scale drawings help the students interpret maps better and understand how to create a scale drawing. Work carefully through this section and assist students where needed.

A Mass

Page 58
1 **a** 2 g **b** 1000 kg
c 120 g **d** 3 kg
e 500 mg **f** 5 kg

g $\frac{1}{2}$ kg **h** 50 mg
i 500 g

Page 59

2 1 kg = 1000 g 1 g = 1000 mg

3 **a** 3000 mg **b** 2000 g
c 4 g **d** 2 g
e 5 kg **f** 30 000 mg

4 **a** 3000 g **b** 2500 g
c 5250 g **d** 6100 g

5 **a** $4\frac{1}{2}$ kg **b** $7\frac{3}{4}$ kg
c 19 kg **d** $11\frac{1}{4}$ kg

Problem-solving

6 **a** 45 ÷ 8 = 5 r 5
He will need to take 6 trips.
b 35 000 ÷ 5 = 7000
They can make 7000 boxes.
c 2500 ÷ 250 = 10
She can make 10 batches of muffins from $2\frac{1}{2}$ kg of flour.

Challenge

7 2 kg 500 g + 3 kg 700 g + 4 kg 800 g = 9 kg 2000 g
9 kg 2000 g = 11 kg

8 **a** 9000 g – 1350 g = 7650 g
b 9000 g – 5400 g = 3600 g

What did you learn?

1 **a** $12\frac{1}{2}$ kg, 5 kg, 3000 g, $2\frac{1}{4}$ kg, 10 000 mg
b 2 kg, 1 kg, $\frac{1}{2}$ kg, 150 g, 7500 mg

2 **a** 2000 g
b 3250 g

B Capacity

Page 60

2 $\frac{3}{4}$ cup sugar = 180 ml

$1\frac{1}{4}$ cup milk = 310 ml

$1\frac{1}{2}$ tbsp flour = $22\frac{1}{2}$ ml

2 tbsp butter = 30 ml

$\frac{1}{2}$ cup cocoa powder = 125 ml

$\frac{1}{2}$ tsp vanilla extract = $2\frac{1}{2}$ ml

Page 61

Problem-solving

3 **a** 2 L = 200 cl
200 ÷ 25 = 8
She needs to buy 9 containers of milk.

b (250 × 2) × 20
= 500 × 20
= 10 000 ml
10 000 – 8000 = 2000 ml
He still needs to buy 2 L of juice for the party.

c 1500 ÷ 125 = 12
She can make 12 pies.

4 **a** 1 cup pineapple juice = 250 ml
1 tbsp soya sauce = 15 ml
$\frac{1}{3}$ cup water = 80 ml
$\frac{1}{2}$ cup brown sugar = 125 ml
3 tbsp vinegar = 45 ml
3 tbsp cornstarch = 45 ml

b pineapple juice: 250 ml × 2 = 500 ml
soya sauce: 15 ml × 2 = 30 ml
water: 80 ml × 2 = 160 ml
brown sugar: 125 ml × 2 = 250 ml
vinegar: 45 ml × 2 = 90 ml
cornstarch: 45 ml × 2 = 90 ml

What did you learn?

1 **a** 24 × 250 = 6000 ml
6000 ml = 6 L

b 4 × 250 = 1000 ml
1000 ml = 1 L

c 4500 ml = $4\frac{1}{2}$ L

d 400 cl = 4 L

2 **a** 5000 ml = 5 L

b 1500 cl = 15 L

c 4500 ml = $4\frac{1}{2}$ L

d 13 250 ml = $13\frac{1}{4}$ L

3 5 tbsp ground coriander: 5 × 15 = 75 ml
2 tbsp cumin: 2 × 15 = 30 ml
1 tbsp turmeric = 15 ml
2 tsp ground ginger: 2 × 5 = 10 ml
2 tsp dry mustard: 2 × 5 = 10 ml
$1\frac{1}{2}$ tsp black pepper: 5 + $2\frac{1}{2}$ = $7\frac{1}{2}$ ml
1 tsp cinnamon = 5 ml
$\frac{1}{2}$ tsp cloves = $2\frac{1}{2}$ ml
$\frac{1}{2}$ tsp ground cardamom = $2\frac{1}{2}$ ml
$\frac{1}{2}$ tsp ground chilli peppers = $2\frac{1}{2}$ ml

75 + 30 + 15 + 10 + 10 + $7\frac{1}{2}$ + 5 + $2\frac{1}{2}$ ml + $2\frac{1}{2}$ ml + $2\frac{1}{2}$ ml = 160 ml
B: 1 cup

C Length

Page 62

1 **a** 2.1 cm, 21 mm, 2 cm 1 mm
b 2.6 cm, 26 mm, 2 cm 6 mm
c 3.5 cm, 35 mm, 3 cm 5 mm
d 4.2 cm, 42 mm, 4 cm 2 mm
e 4.4 cm, 44 mm, 4 cm 4 mm

2 Student's drawings

4 **a** 150 cm **b** 200 cm
c 225 cm **d** 375 cm

5 **a** 4 m 30 cm **b** 2 m 50 cm
c 5 m 75 cm **d** 6 m 9 cm

6 **a** 240 cm = 2400 mm
b 310 cm = 3100 mm
c 401 cm = 4010 mm
d 173 cm = 1730 mm

Page 63

Problem-solving

7 **a** 8 × 8 = 64 mm
b How many blocks there are in each row.

8 **a** 15 × 8 = 120 mm
b 120 + 120 = 240 mm
You can stack 16 planks.

Scale diagrams

Page 64

9 **a** 12 × $2\frac{1}{2}$ = 30 cm
b 3 by $2\frac{1}{2}$ = (12 × 3) by (12 × $2\frac{1}{2}$)
= 36 by 30
The real length is 36 cm and the width is 30 cm.

10 **a** $5\frac{1}{2}$ × 12 = 66 km
b 3.8 cm × 12 = 45.6 km
OR
5.1 cm × 12 = 61.2 km
c 1.7 + 2 = 3.7 cm
12 × 3.7 = 44.4 km

What did you learn?

1 **a** 18 cm = 180 mm
b $4\frac{1}{2}$ m > 425 cm
c 2 m < 300 cm

2 850 × 100 = 8.5 m

4 $2\frac{1}{2}$ cm × 25 = $62\frac{1}{2}$ km

5 It is a scale diagram of real life.

Topic 7 Review

Page 65

Key ideas and concepts

1 Kilometres and metres. 1000 m = 1 km

2 Mass

3 3000 g

4 A container can hold 3 litres of liquid.

5 Scale on a measuring jug gives accurate amounts. Scale on a map is a fraction of the size of real life.

Quick check

1 Kilograms, grams, milligrams

2 A man

3 Textbook

4 **a** 500 g **b** 2000 g
c 5250 g

5 **a** 1 kg **b** $8\frac{1}{2}$ kg
c $4\frac{1}{4}$ kg

6 **a** 500 ml **b** 8 cups

Problem-solving

7 123 – 90 = 33 kg he wants to lose.
33 000 g ÷ 500 g = 66
It will take him 66 weeks to lose 33 kg

8 **a** 2 m = 200 cm
200 ÷ 23 = 8 r 16
It will take the frog 9 jumps to cover 2 m.
b 207 cm / 2 m 7 cm

9 Student's scale drawing should be: 8 cm long and 5 cm wide.

Topic 8 Data handling (1)

Page 66

Identifying different methods of collecting data, depending on the situation, organising the data and working out the averages are all important skills required when working with data. Work carefully through this section and allow the students to work together and learn from each other.

A Collecting and organising data

Page 69

4

Vowel	Tally	Frequency
A	𝍸 𝍸 II	12
E	𝍸 IIII	9
I	𝍸	5
O	III	3
U	IIII	4

Page 70

5

Age group	Tally	Frequency
0–10	III	3
11–20	𝍸 II	7
21–30	𝍸 𝍸 II	12
31–40	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 II	32
41–50	𝍸 𝍸 𝍸 III	18
51–60	𝍸 𝍸 𝍸	15
>60	III	3

6 **a**

Number of passengers	Frequency
0–10	10
11–20	14
21–30	5
31–40	6
41–50	2
51 or more	3

b To see the average between those numbers.

c People working at an airline so they can see if their flights can become more efficient or if it is fine as is.

B Averages – the mean

Page 71

1 **a** $2\frac{1}{2}$ **b** $13\frac{1}{4}$

c 200

2 60%

Page 72

3 **a** 127 mm **b** 104 $\frac{1}{2}$ mm

c Tokyo Disneyland, Japan **d** 198 mm

e 154 mm **f** Walt Disney World, USA

Problem-solving

4 $64\frac{1}{2}$ kg

5 **a** Class 5A: 12 hours
Class 5B: 11 hours

b Class 5A

c Add all their hours together and divide by 15.

What did you learn?

1 **a** 137

b 15

2 This is the average number of children in each family, calculated by adding together all the children in every family and dividing the total by the number of families.

Topic 8 Review
Page 73

1

Method of collection	Steps of this method	Example of data that could be collected using this method
Observation	Find the answers you need by looking and counting	Number of buses or trucks passing an intersection
Interview	Ask people questions and record their answers	Who wears glasses in a class
Questionnaire	Use a form that you give people to fill in themselves	What the children do on Saturdays

2 **a** Record the data in a table with tally system or frequency table.
b Add up the values in the set you received and then divide the sum by the number of values in the set.

Think, talk, write …

1 **a** Colour/size T-shirts most popular
b Time of the year most people tour the island
c The batting and wicket taking totals of team members
d The amount people will be willing to pay for the trip

2 It will increase or decrease the value of the average.

Quick check

1 **a** Have the students complete a questionnaire with pictures of the caps on it for them to make a choice.

2 **a** Interview, as you can ask the fishermen how many they collected and record the results.
b 11

Topic 9 Number sense (3)

Page 74

Continue working on fractions following on from last year. Work carefully through this topic to ensure there are no misconceptions about how to add or subtract fractions. Continue to also build on the students' understanding of equivalent fractions and simplifying fractions. Work slowly when introducing decimals, percentages, and ration and proportion. Set aside time to assist students who need more help.

A Revisiting fractions

Page 77

1 **a** **i** $\frac{1}{4}$ **ii** $\frac{2}{8}$
iii $\frac{2}{8}$ **iv** $\frac{5}{8}$
v $\frac{1}{6}$ **vi** $\frac{1}{3}$
b **i** $\frac{3}{4}$ **ii** $\frac{6}{8}$
iii $\frac{6}{8}$ **iv** $\frac{3}{8}$
v $\frac{5}{6}$ **vi** $\frac{2}{3}$

3 For example: $\frac{3}{6}, \frac{3}{9}, \frac{3}{15}$

4 $\frac{1}{3}, \frac{1}{5}, \frac{1}{9}, \frac{3}{5}, \frac{3}{9}, \frac{5}{9}$

5

a	$\frac{1}{5}$	**b**	$\frac{1}{4}$
c	$\frac{3}{4}$	**d**	$\frac{4}{5}$
e	$\frac{1}{2}$	**f**	$\frac{1}{3}$
g	$\frac{1}{3}$	**h**	$\frac{1}{3}$
i	$\frac{3}{4}$	**j**	5
k	$\frac{4}{6}$	**l**	$\frac{1}{5}$

6

a	4	**b**	$5\frac{1}{3}$
c	$4\frac{3}{4}$	**d**	3
e	$2\frac{3}{5}$	**f**	6
g	20	**h**	$4\frac{3}{5}$
i	2	**j**	$4\frac{2}{6}$
k	1	**l**	$1\frac{3}{9}$

7

a	$\frac{5}{2}$	**b**	$\frac{13}{3}$
c	$\frac{9}{4}$	**d**	$\frac{25}{8}$
e	$\frac{13}{2}$	**f**	$\frac{11}{4}$

Compare and order fractions
Page 78

8

a	True	**b**	False
c	False	**d**	False
e	False	**f**	True
g	False	**h**	True

9

a	$\frac{2}{3} < \frac{3}{4}$	**b**	$\frac{6}{10} > \frac{4}{5}$
c	$\frac{1}{2} > \frac{1}{3}$	**d**	$\frac{1}{3} < \frac{5}{12}$
e	$\frac{2}{3} < \frac{5}{6}$	**f**	$\frac{4}{5} < \frac{17}{20}$
g	$\frac{2}{5} < \frac{41}{100}$	**h**	$\frac{1}{4} > \frac{2}{5}$

10 **a** $\frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \frac{3}{8}, \frac{1}{2}$ **b** $\frac{1}{10}, \frac{1}{2}, \frac{4}{5}, \frac{9}{10}$

c $\frac{1}{3}, \frac{7}{12}, \frac{3}{4}, \frac{5}{6}$

11 **a** $\frac{5}{6}, \frac{2}{3}, \frac{7}{12}, \frac{1}{2}$ **b** $1\frac{4}{5}, 1\frac{3}{4}, 1\frac{6}{10}, 1\frac{1}{2}$

c $\frac{3}{4}, \frac{7}{10}, \frac{4}{5}, \frac{2}{5}$

12 **a** $\frac{3}{4}$ of 4 whole pizzas = 3 pizzas; $\frac{6}{8}$ of 8 whole pizzas = 6 pizzas

It will depend on how many there are in the whole as to how much the fraction will represent.

b Infinite number as you can continue multiplying the numerator and denominator by different numbers.

What did you learn?

1 **a** a: $\frac{1}{6}$ b: $\frac{1}{9}$,
c: $\frac{1}{4}$ d: $\frac{1}{36}$
e: $\frac{5}{36}$ f: $\frac{1}{12}$

b a: $\frac{2}{12}$ b: $\frac{2}{18}$
c: $\frac{2}{8}$ d: $\frac{2}{72}$
e: $\frac{10}{72}$ f: $\frac{2}{24}$

2 **a** $\frac{2}{8} = \frac{1}{4}$ **b** $\frac{1}{5} = \frac{2}{10}$

c $\frac{3}{4} < \frac{7}{8}$ **d** $\frac{3}{4} < 1$

B Decimals

Page 80

1 **a** 1.64 **b** 2.55
c 0.07 **d** 2.6

2 **a** 37.7 **b** 0.23
c 112.09 **d** 3.99

3 **a** 0.5 **b** 3
c 0.09 **d** 0.05
e 100 **f** 0.07
g 0.2 **h** 0.9

Problem-solving

4 **a** 50.6 **b** 47.5, 3.56
c 0.35 **d** 5 tenths

5 $3.50 + $0.20 = $3.70
$4.25 + $0.20 = $4.45
$5.00 + $0.20 = $5.20
$6.75 + $0.20 = $6.95
$1.80 + $0.20 = $2.00

Compare and order decimals

Page 81

6 **a** 3.4 > 3.04 **b** 13.1 > 13.01
c 0.28 < 0.82 **d** 0.75 > 0.7
e 0.49 > 0.45 **f** 99.24 < 99.42

7 **a** 10.80, 10.00, 9.99, 9.96, 9.92, 9.58
b 9.58 + 0.03 = 9.61

8 **a** 2.104 km, 2.04 km, 2.004 km
b 0.131 L, 0.13 L, 0.031 L
c 1.503 kg, 1.35 kg, 1.305 kg

9 **a** 9.83

b 9.82 is second and 9.8 is third.

10 Yes, he can use the piece of metal.

11 **a** 0.3 **b** 0.03
c 0.28 **d** 0.5

What did you learn?

1 $ 9.99, $ 9.90, $ 9.09, $ 9.00, $ 0.99, $ 0.09

2 0.237, 0.7, 0.72

C Percentages

Page 83

1 Sales in shops, amount of rain, report card marks, humidity, increase in cost of items

2 **a** $47.00 + $10.00 = $57.00
She has spent 57%.
b $100.00 – $57.00 = $43.00
She has 43% left.

3 **a** 100% **b** 25%
c 80% **d** 80%
e 75% **f** 25%
g 30% **h** 28%
i 25%

4 **a** 20%, 60% **b** 25%, 25%
c 10%, 30% **d** 5%, 70%
e 4%, 52%

5 **a** 45% **b** 70%
c 35% **d** 25%
e 7% **f** 30%
g 1% **h** 50%
i 80% **j** 99%

6 **a** 60% **b** 90%
c 18% **d** 8%
e 99% **f** 50%
g 80% **h** 36%
i 62% **j** $62\frac{1}{2}$%

7 **a** $\frac{89}{100}$, 0.89 **b** $\frac{52}{100}$, 0.52
c $\frac{6}{100}$, 0.06 **d** $\frac{100}{100}$, 1.00
e $\frac{4}{100}$, 0.04 **f** $\frac{90}{100}$, 0.9
g $\frac{30}{100}$, 0.3 **h** $\frac{16}{100}$, 0.16
i $\frac{25}{100}$, 0.25 **j** $\frac{333}{1\,000}$, 0.333

8 **a** 20% **b** 60%
c 100%

Problem-solving

9 **a** 100% – (15% + 32%)
= 100% – 47%
= 53%
b 100% – (20% + 34%)
= 100% – 54%
= 46%

10 English – $72\frac{1}{2}$%
History – 68%
Her highest percentage was for English.

11 Ms Walker – 20%
Mr Darville 20%
20% of each class scored an A grade.

12 Fish: $\frac{50}{100}$ of 300 g
300 g + 150 g = 450 g of fish
Beans: $\frac{25}{100}$ of 160 g
160 g + 40 g = 200 g of beans

13 **a** $\frac{27}{50}$ = 54% of the birds are parrots.

b $\frac{8}{50}$ = 16% of the birds are red-nicked pigeons.

14 **a** $\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$
$\frac{3}{5}$ = 60%
He gave 60% of the cake away.

b $\frac{1}{2} - \frac{2}{5}$
$= \frac{5}{10} - \frac{4}{10}$
$= \frac{1}{10}$
10% of the cake remains.

15 $\frac{30}{100}$ of 300 cm
= 90 cm of the rope was cut off.

What did you learn?

1 **a** $\frac{5}{100}$ **b** $\frac{80}{100}$
c $\frac{100}{100}$ **d** $\frac{200}{100}$

2 **a** $\frac{5}{100}$, 0.05 **b** $\frac{10}{100}$, 0.1
c $\frac{15}{100}$, 0.15 **d** $\frac{100}{100}$, 1
e $\frac{1}{100}$, 0.01

D Ratio and proportion

Page 85

1 **a** 3:2 **b** 2:5
c 1:2 **d** 1:1

2 **a** 3:2 **b** 3:6
c 5:8 **d** 4:7

3 **a** $\frac{3}{5}$
b 2:3
There are 2 boys and 3 girls.

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4 **a** A: $\frac{4}{6}$ B: $\frac{2}{5}$
C: $\frac{3}{6}$ D: $\frac{4}{7}$

b A: 4:2
B: 2:3
C: 3:3
D: 4:3

5 **a** True
b False
c True

6 **a** 15:6
b 6:18:15 = 2:6:5
c 18:15 = 6:5

Problem-solving

7 3:1

8 1:2
9:18 for 36 people.
You will need 18 cups of water for 36 people.

What did you learn?

1 $\frac{3}{12}$

2 $\frac{5}{12}$

3 2:5

4 1:3

5 Blue:Red

Topic 9 Review

Page 87

Quick check

1 **a** $\frac{3}{5}$ **b** $\frac{2}{3}$
c $\frac{4}{5}$ **d** $\frac{5}{9}$
e $\frac{7}{20}$

2 **a** $1\frac{3}{4}$ hours **b** $1\frac{1}{4}$ cm
c $1\frac{1}{2}$ years

3 **a** $\frac{5}{10} = \frac{1}{2}$ **b** $\frac{1}{3} < \frac{4}{10}$
c $\frac{1}{3} > \frac{3}{10}$ **d** $\frac{4}{10} > \frac{3}{12}$

4 **a** 5 000 **b** 0.03
c 3 **d** 0.1
e 0.03

5 **a** 0.7, 70% **b** 0.32, 32%
c 0.75, 75% **d** 0.09, 9%
e 0.48, 48%

6 **a** 1 = blue, 3 = yellow
(Shape is to be divided into 4 equal sections.)

b 2 = blue, 1 = yellow
(Shape is to be divided into 3 equal sections.)
c 2 = blue, 5 = yellow
(Shape is divided into 7 equal sections.)
d 2 = blue, 1 = yellow
(Shape is divided into 3 equal sections.)

7 **a** $\frac{12}{20}$
b $\frac{15}{20}$
c $2\frac{9}{12}$

Topic 10 Algebraic thinking

Page 88

Writing number sequences in ascending and descending order and being able to write the rules for number sequences will show the students' level of understanding of the work in this topic. Work carefully through the topic and allow the students to work and learn together.

A Number sequences

Page 91

1 **a** Student's drawing: five squares; six squares
1, 2, 3, 4, 5, 6
The term number multiplied by 1.
b Student's drawing: five triangles; six triangles
1, 2, 3, 4, 5, 6
The term number multiplied by 1.
c Student's drawing: continue the pattern of triangular numbers.
1, 3, 6, 10, 15, 21
The term multiplied by the answer of the term plus 1.
d Student's drawing: continue the pattern of square numbers.
1, 4, 9, 16, 25, 36
The term multiplied by the term.

2 **a** T × 10
50, 60, 70
b T × 30
180, 210, 240
c 10^{T}
10 000, 100 000, 1 000 000

3 100

4 Paired work

Problem-solving

5 **a** 24, 35, 48, 63, 80
b House 1: 3
House 2: 3 + 5
House 3: 3 + 5 + 7
House 4: 3 + 5 + 7 + 9
House 5: 3 + 5 + 7 + 9 + 11
House 6: 3 + 5 + 7 + 9 + 11 + 13
House 7: 3 + 5 + 7 + 9 + 11 + 13 + 15

House 8: 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17
The total is one less than the square number that follows it.

What did you learn?

1 15 dots as it is a triangular number.

2 **a** 12, 14, 16
b 12, 9, 6
c 31, 36, 41

B Unknown values and equations

Page 93

1 **a** $x = 4$ **b** $y = 7$
c $y = 8$ **d** $x = 49$
e $x = 10$ **f** $x = 4$
g $x = 11$ **h** $y = 35$
i $y = 1\frac{1}{2}$ **j** $x = 9$
k $x = 6$ **l** $y = 3$
m $x = 3$ **n** $x = 80$
o $y = 5$

2 **a** $a = 12$ **b** $x = 48$
c $x = 20$ **d** $x = 40$
e $a = 15$ **f** $m = 5$
g $s = 22$ **h** $m = 11$

3 **a** $x = 7$ **b** $x = 90$
c $x = 50$ **d** $x = 6$
e $x = 9$ **f** $x = 8$

Problem-solving

4 **a** $5 + x = 14$
$x = 9$
b $10 + y = 200$
$y = 190$
c $a - 3 = 121$
$a = 118$
d $45 - b = 0$
$b = 45$
e $x \div 2 = 32$
$x = 64$
f $y \times 2 = 50$
$y = 25$

5 **a** 2×4, 4×2, 1×8, 8×1
b 10 + 5, 11 + 4, 12 + 3, 13 + 2, 14 + 1, 9 + 6, 8 + 7
c 2×30, 20×3, 4×15, 5×12, 6×10
d

m	*n*
0	80
1	78
2	76
3	74
4	72
5	70

6	68
7	66
8	64
9	62
10	60
11	58
12	56
13	54
14	52
15	50
16	48
17	46
18	44
19	42
20	40
21	38
22	36
23	34
24	32
25	30
26	28
27	26
28	24
29	22
30	20
31	18
32	16
33	14
34	12
35	10
36	8
37	6
38	4
39	2

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Challenge

6 **a** 4 + 5 + 45 = 54

b 999 + 1 = 1 000

c 5 + 5 + 5 = 15

d 3 532 – 1 960 = 1 572, 5 613 – 2 970 = 2 643

e 26 811 + 4 708 = 31 519, 28 566 + 7 495 = 36 061

What did you learn?

1 **a** $n = 16$ **b** $n = 5$

c $n = 80$ **d** $n = 10$

e $n = 15$

You work the answer out by doing the inverse operation.

2 **a** $11 + y = 20$

$y = 9$

b $x – 7 = 4$

$x = 11$

c $m - 11 = 9$
$m = 20$

d $8 \times n = 32$
$n = 4$

e $2 \times m = 4 + 20$
$2 \times m = 24$
$m = 12$

Topic 10 Review

Page 95

Key ideas and concepts

Sequence	An ordered set of numbers that follow a pattern
Rule	Instruction for generating a pattern
Variable	A letter used to represent unknown numbers
Equation	A calculation written with numbers and an equals sign
Square number	The product of a number and itself
Solve	Work out the answer

Quick check

1 **a** 13, 16, 19

b 87, 81, 74

c 108, 36, 12

2 **a** Multiples of 3. It goes up in 3 each time.

b 15 squares

c T × 3

d 20 × 3 = 60 squares

3 **a** $n + 4 = 13$
$n = 9$

b $n + 9 = 17$
$n = 8$

c $n - 7 = 12$
$n = 19$

d $n \times 8 = 56$
$n = 7$

e $2 \times n + 3 = 21$
$n = 9$

4 $x \div 3$

5 $n \times 3 + 5 = 17$
$n = 4$

Topic 11 Measurement (2)

Page 96

Working out area and perimeter has been done at previous levels. Make sure the students have no misconceptions before they start developing and improving their skills of working with area and perimeter.

A Perimeter

Page 98

1 **a** 4 + 4 + 4 + 4 = 16 cm

b $(4 \times 2\text{ cm}) + (2 \times 4\text{ cm})$
$= 8 + 8$
$= 16\text{ cm}$

c $(2 \times 4\text{ cm}) + 3.5\text{ cm} + 1\text{ cm} + 3\text{ cm}$
$= 8 + 7.5$
$= 15.5\text{ cm}$

2 **a** $3 + 8 + 10 = 21\text{ m}$

b $15 + 15 + 14 + 12 + 11 = 67\text{ m}$

c $2.2 + 3 + 2.5 + 1.5 = 9.2\text{ km}$

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3 **a** $(2 \times 2\text{ m}) + (2 \times 4\text{ m})$
$= 4 + 8$
$= 12\text{ m}$

b $(2.8\text{ m} \times 2) + (3.7\text{ m} \times 2)$
$= 5.6 + 7.4$
$= 13\text{ m}$

c $(1.3\text{ km} \times 2) + (2.9\text{ km} \times 2)$
$= 2.6 + 5.8$
$= 8.4\text{ km}$

d $(43\text{ cm} \times 2) + (20\text{ m} \times 2)$
$= 86\text{ cm} + 40\text{ m}$
$= 86\text{ cm} + 4\,000\text{ cm}$
$= 4\,086\text{ cm}/40.86\text{ m}$

4 **a** Multiply the one length of each opposite side by 2 and add the answers.

b Multiply the length of one side by 4.

Problem-solving

5 **a** $20\text{ cm} \times 4 = 80\text{ cm}$

b $(60\text{ cm} \times 2) + (45\text{ cm} \times 2)$
$= 120\text{ cm} + 90\text{ cm}$
$= 210\text{ cm}$

c $(2.4\text{ m} \times 2) + (0.5 \times 2)$
$= 4.8 + 1$
$= 5.8\text{ m}$

6 **a** $(90\text{ cm} \times 2) + (65\text{ cm} \times 2)$
$= 180\text{ cm} + 130\text{ cm}$
$= 310\text{ cm}$

b $24\text{ cm} \times 4 = 96\text{ cm}$
The ribbon needs to be 96 cm.

c $16 + 0.5 + 0.5 = 17\text{ cm}$
$8 + 0.5 + 0.5 = 9\text{ cm}$
$(17\text{ cm} \times 2) + (9\text{ cm} \times 2)$
$= 34 + 18$
$= 52\text{ cm}$
The total length of the tape will be 52 cm.

d $160\text{ cm} \div 4 = 40\text{ cm}$
Each side will be 40 cm.

e $38\text{ cm} - (11\text{ cm} \times 2)$
$= 38\text{ cm} - 22\text{ cm}$
$= 16\text{ cm}$

16 cm ÷ 2 = 8 cm
The other 3 sides are: 11 cm, 8 cm, 8 cm.

Challenge

7 12 cm + 12 cm + 18 cm + 18 cm = 60 cm
11 cm + 11 cm + 19 cm + 19 cm = 60 cm
10 cm + 10 cm + 20 cm + 20 cm = 60 cm
13 cm + 13 cm + 17 cm + 17 cm = 60 cm
There are many more variations. Make sure the four sides add up to 60 cm.

What did you learn?

1 Perimeter is the total distance around an area.

2 **a** (21.5 cm × 2) + (18.5 cm × 2)
= 43 + 37
= 80 cm

b 24 mm ÷ 4 = 6 mm

c (155 mm × 2) + (87 mm × 2)
= 310 mm + 174 mm
= 484 mm

B Area

Page 100

1 **a** 2 × 6 = 12 square units

b 5 × 5 = 25 square units

c 3 × 8 = 24 square units

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2 **a** 5 × 2 = 10 cm^2

b 4 × 5 = 20 cm^2

c 3 × 6 = 18 cm^2

d 3 × 5 = 15 cm^2

e 1 × 5 = 5 cm^2

3 **a** **i** 4 × 4 = 16 cm^2

ii 2 × 6 = 12 cm^2

iii 3 × 5 = 15 cm^2

iv 4 × 6 = 24 cm^2

b Work out the area of the rectangle and then halve it.

Problem-solving

4 Length = 20 cm, width = 5 cm

5 24 × 2, 16 × 3, 12 × 4, 6 × 8, 48 × 1

6 8 × 5 = 40 m^2
(8 + 2) × x = 60 m^2
x = 6 m
He needs to increase the width by 1 m.

7 4 × 5 = 20 cm^2

What did you learn?

1 cm

2 Perimeter is working out the distance around a space or shape. Area is working out how much space is covered by the shape.

3 **a** $(35 \times 2) + (22 \times 2)$
$= 70 + 44$
$= 114$ m
b $35 \times 22 = 770$ m^2

C Perimeter and area in real life

Page 102

Work carefully through the project with the students, guiding them step-by-step.

Topic 11 Review

Page 103

Key ideas and concepts

1 distance
2 adding, side
3 circumference
4 square units
5 formula

Think, talk, write …

1 **a** Measurement A
b Measurement B
c 2 100 – 200 = 1 900 cm
d $P = (2 \times 70) + (2 \times 30)$
$A = 70 \times 30$

Quick check

1 **a** $P = (2 \times 3 \text{ cm}) + (2 \times 2 \text{ cm})$
$= 6 \text{ cm} + 4 \text{ cm}$
$= 10 \text{ cm}$
$A = 2 \text{ cm} \times 3 \text{ cm}$
$= 6 \text{ cm}^2$
b $P = 4 \times 3 \text{ cm}$
$= 12 \text{ cm}$
$A = 3 \text{ cm} \times 3 \text{ cm}$
$= 9 \text{ cm}^2$
c $P = (2 \times 5 \text{ cm}) + (2 \times 4 \text{ cm})$
$= 10 \text{ cm} + 8 \text{ cm}$
$= 18 \text{ cm}$
$A = 5 \text{ cm} \times 4 \text{ cm}$
$= 20 \text{ cm}^2$

Problem-solving

2 $2 \times [(96 \text{ m} \times 2) + (70 \text{ m} \times 2)]$
$= 2 \times (192 \text{ m} + 140 \text{ m})$
$= 2 \times 332 \text{ m}$
$= 664 \text{ m}$
3 $45 \text{ cm} \times 45 \text{ cm} = 2\,025 \text{ cm}^2$
4 $3 \text{ m} \times 4 \text{ m} = 12 \text{ m}^2$
$\$8.50 \times 12 = \$102.00$

Topic 12 Shape and space (2)

Page 104

The students will spend time recognising and naming the 3-D shapes on paper and in real life. Work carefully through the nets section and coordinate systems.

A 3-D objects

Page 107

1 **a** Ball: sphere; pencil: cylinder; shoe box: cuboid; dice: cubes; party hat: cone; tin/can: cylinder

b For example:
Sphere: marble, globe, bead, orange, apple
Cylinder: pole, pillar, cable, lamp stand, gate post
Cuboid: laptop, cell phone, calculator, pencil case, door
Cube: storage box, post box
Cone: ice-cream cone, traffic cone

2 Student's drawings

a Cuboid **b** Cylinder
c Cube **d** Sphere
e Cone

3 **a** Cube, cuboid **b** Cylinder, cone, sphere
c Cylinder, sphere, cone **d** Triangular pyramid
e Cube, cuboid **f** Cube
g Cylinder, cone, sphere

4 Jayson: cube
Andrea: cylinder
Mike: cone
Maria: cuboid
Anne: sphere
Kenny: cylinder/cube

Page 108

Challenge

5 6, 7, 15, 28

6 b: the cube faces will be 4×4 x 4×4. The other shapes do not fit together for the faces to be equal in number.

B Nets of 3-D objects

Page 110

1 **a** g **b** e
c f **d** h

Problem-solving

2 b, c, e, f
The other shapes will not fold correctly to create a cube.

C Coordinates on a grid

Page 111

1 **a** Parking
b Turtles
c ATM

d Café

2 **a** (2,4)
b (6,8)
c (8,6)
d (5,4)

3 (1,6) or (6,1) They are close to the parking.

4 (6,6)

Page 112

5 **a** (8, 4)
b **i** Shipwreck
ii Sugar mill
iii Soufrière volcano
c **i** (1, 2)
ii (1, 5)
iii (9, 2)
d Between Pirate Bay and Sugar mill

Topic 12 Review

Page 113

Key ideas and concepts

1 They both have 6 faces, 12 edges and 8 vertices.

2 A cylinder has 2 flat faces whereas a cone only has one. A cone has a curved surface that ends at a point.

3 It is a flat pattern that can be folded up to make a 3-D object. You can make one by unfolding a 3-D shape and drawing it.

4 Finding positions on a grid. Give the reading from the *x* axis and then from the *y* axis in brackets.

Think, talk, write …

1 Mira: 6 more
Simon: 5 more
Natascha: 4 more
Troy: 22 more

2 (3,4): 3 is on the *x* axis and 4 is on the *y* axis.
(4,3): the 4 is on the *x* axis and the 3 is on the *y* axis.

Quick check

1 Cuboid, it has rectangular faces now.

2 Student's drawing

3 **a** Where *x* and *y* axes meet (0,0)
b (2, 8), (4, 8), (1, 7), (3, 7), (2, 6), (4, 6), (1, 5), (3, 5)
c Apex of the cone

Test yourself (2)

Page 114

1 799

2 $(x \times 2) + 6 = 20$
$x = 7$

3 $58 \div 7 = 8$ r 2

Maria can fill 8 bags.

4 $4 075.00

5 **a** March
b February
c Sixty-four thousand three hundred dollars
d $72 200

6 $40 = 2 \times 2 \times 2 \times 5$

7 HCF = 4

8 Millimetres

9 $5 \times 20 = 100$ km

10 500 cm

11 Tom (6.5 m)

12 $(3 \times 248) + 338$
$= 744 + 338$
$= 1\,082$ g

13 a

Page 115

14 Capacity

15 3 kg

16 $\frac{5}{9}, \frac{5}{7}, \frac{5}{6}$ **17** $\frac{2}{9}$

18 $\frac{35}{9}$ **19** a

20 $\frac{3}{5} = \frac{6}{10}$ **21** $\frac{12}{18} = \frac{2}{3}$

22 0.03 (thousandths)

23 2.03

24 **a** $\frac{1}{4}$, 0.25, 25%
b $\frac{1}{2}$, 0.5, 50%
c $\frac{2}{3}$, 0.666, 66.6%

25 8 cents

26 **a** $5 + 8 + 10 + 2 + 6 + 5 = 36$ cm
b $(5 \times 8) + (2 \times 5)$
$= 40 + 10$
$= 50$ cm^2
(Break the shape up into two rectangles. Work out the area of each rectangle and then add the two totals together to get the area of the whole shape.)

27 A: cube or cuboid
B: cylinder
C: cone

28 Observation

29 Questionnaire as there will be a few questions to ask each person. This is an easy way to collect a lot of data to then capture.

Topic 13 Computation (3)

Page 116

Working more with fractions and improving on students' skills to work effectively and efficiently is important. Relating their work to real-life situations will also make the work more relevant to the students. Work carefully through this section and focus on the areas where the students often can develop misconceptions.

A Calculate with fractions

Page 119

1 **a** $\frac{4}{5} = \frac{16}{20}$

$\frac{3}{4} = \frac{15}{20}$

b $\frac{5}{6} = \frac{20}{24}$

$\frac{1}{8} = \frac{3}{24}$

c $\frac{2}{7} = \frac{4}{14}$

$\frac{3}{2} = \frac{21}{14}$

d $\frac{2}{4} = \frac{10}{20}$

$\frac{1}{5} = \frac{4}{20}$

e $\frac{2}{3} = \frac{10}{15}$

$\frac{3}{5} = \frac{9}{15}$

f $\frac{1}{6} = \frac{7}{42}$

$\frac{3}{7} = \frac{18}{42}$

g $\frac{1}{2} = \frac{9}{18}$

$\frac{8}{9} = \frac{16}{18}$

h $\frac{4}{5} = \frac{28}{35}$

$\frac{5}{7} = \frac{25}{35}$

2 **a** $\frac{3}{8}$ **b** $\frac{2}{4} = \frac{1}{2}$

c $\frac{1}{30}$ **d** $\frac{6}{7}$

e 1 **f** $5\frac{2}{3}$

g $4\frac{5}{10} = 4\frac{1}{2}$ **h** 2

3 **a** $\frac{4}{5} + \frac{2}{3}$

$= \frac{12}{15} + \frac{10}{15}$

$= \frac{22}{15}$

$= 1\frac{7}{15}$

b $\frac{7}{4} + \frac{4}{3}$

$= \frac{21}{12} + \frac{16}{12}$

$= \frac{37}{12}$

$= 3\frac{1}{12}$

c $\frac{12}{7} - \frac{13}{14}$

$= \frac{24}{14} - \frac{13}{14}$

$= \frac{11}{14}$

d $\frac{1}{2} - \frac{2}{5}$

$= \frac{5}{10} - \frac{4}{10}$

$= \frac{1}{10}$

e $\frac{3}{10} + \frac{4}{5}$

$= \frac{3}{10} + \frac{8}{10}$

$= \frac{11}{10}$

$= 1\frac{1}{10}$

f $\frac{7}{3} + \frac{3}{2}$

$= \frac{14}{6} + \frac{9}{6}$

$= \frac{23}{6}$

$= 3\frac{5}{6}$

g $\frac{2}{6} + \frac{3}{9}$

$= \frac{6}{18} + \frac{6}{18}$

$= \frac{12}{18}$

$= \frac{2}{3}$

h $\frac{8}{3} - \frac{5}{6}$

$= \frac{16}{6} - \frac{5}{6}$

$= \frac{11}{6}$

$= 1\frac{5}{6}$

i $\frac{1}{4} + \frac{1}{2}$

$= \frac{1}{4} + \frac{2}{4}$

$= \frac{3}{4}$

j $\frac{2}{7} + \frac{3}{21}$

$= \frac{6}{21} + \frac{3}{21}$

$= \frac{9}{21}$

$= \frac{3}{7}$

k $\frac{2}{3} + \frac{2}{15}$

$= \frac{10}{15} + \frac{2}{15}$

$= \frac{12}{15}$

$= \frac{4}{5}$

l $\frac{1}{9} + \frac{1}{18}$

$= \frac{2}{18} + \frac{1}{18}$

$= \frac{3}{18}$

$= \frac{1}{6}$

m $\frac{5}{6} - \frac{4}{12}$

$= \frac{10}{12} - \frac{4}{12}$

$= \frac{6}{12}$

$= \frac{1}{2}$

n $\frac{15}{10} - \frac{12}{40}$

$= \frac{60}{40} - \frac{12}{40}$

$= \frac{48}{40}$

$= 1\frac{8}{40} / 1\frac{1}{5}$

o $\frac{3}{4} - \frac{2}{3}$

$= \frac{9}{12} - \frac{8}{12}$

$= \frac{1}{12}$

p $\frac{7}{8} - \frac{3}{4}$

$= \frac{7}{8} - \frac{6}{8}$

$= \frac{1}{8}$

Problem-solving

4 $(2 \times 2\frac{3}{5}) + (2 \times 3\frac{1}{10})$

$= 5\frac{2}{10} + 6\frac{2}{10}$

$= 11\frac{4}{10} / 11\frac{2}{5}$ m

5 $24 - (8 + 4 + 2 + 9)$

$= 24 - 23$

= 1 hour
He has one hour left.

6 $\frac{1}{3} + \frac{1}{5} + \frac{1}{10}$
$= \frac{10}{30} + \frac{6}{30} + \frac{3}{30}$
$= \frac{19}{30}$
This means that $\frac{11}{30}$ of the area of the hotel is left over.

7 **a** $1\frac{3}{4} + 1\frac{3}{4} + 4\frac{1}{2}$
$= 6\frac{6}{4} + \frac{2}{4}$
$= 6\frac{8}{4}$
$= 8$ L

b 10 L – 8 L = 2 L of water

Challenge

8 Maria: $\frac{5}{6}$
Sandra: $\frac{3}{8}$
Royston: $\frac{3}{5}$

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9 **a** $\frac{1}{2} \times \frac{3}{4}$
$= \frac{3}{8}$

b $\frac{3}{4} \times \frac{5}{6}$
$= \frac{5}{8}$

c $\frac{7}{8} \times \frac{7}{8}$
$= \frac{14}{16} / \frac{7}{8}$

d $\frac{3}{5} \times \frac{2}{3}$
$= \frac{2}{5}$

e $\frac{2}{3} \times \frac{1}{6}$
$= \frac{1}{9}$

f $\frac{5}{6} \times \frac{3}{10}$
$= \frac{1}{4}$

g $\frac{5}{8} \times \frac{1}{6}$
$= \frac{5}{48}$

h $\frac{5}{6} \times \frac{5}{8}$

$= \frac{25}{48}$

10 **a** $\frac{8}{9} \times \frac{3}{5}$

$= \frac{8}{15}$

b $\frac{7}{10} \times \frac{5}{8}$

$= \frac{7}{16}$

c $\frac{1}{3} \times \frac{9}{20}$

$= \frac{3}{20}$

d $\frac{1}{2} \times \frac{4}{5}$

$= \frac{2}{5}$

e $\frac{1}{2} \times \frac{8}{10}$

$= \frac{4}{10}$

f $\frac{3}{10} \times \frac{5}{6}$

$= \frac{1}{4}$

g $\frac{5}{8} \times \frac{2}{10}$

$= \frac{1}{8}$

h $\frac{2}{3} \times \frac{3}{4}$

$= \frac{1}{2}$

i $3 \times \frac{5}{6}$

$= \frac{5}{2}$

$= 2\frac{1}{2}$

j $\frac{11}{12} \times 4$

$= \frac{11}{3}$

$= 3\frac{2}{3}$

k $\frac{3}{5} \times \frac{10}{13}$

$= \frac{6}{13}$

l $\frac{7}{10} \times \frac{5}{21}$

$= \frac{1}{6}$

11 **a** $\frac{3}{4} \times \frac{9}{10}$

$= \frac{27}{40}$

b $\frac{15}{20} \times \frac{3}{4}$

$= \frac{45}{80}$

c $\frac{18}{25} \times \frac{3}{4}$

$= \frac{54}{100}$

$= \frac{27}{50}$

d $\frac{3}{10} \times \frac{15}{16}$

$= \frac{9}{32}$

e $\frac{49}{100} \times \frac{3}{7}$

$= \frac{21}{100}$

f $1\frac{1}{3} \times \frac{3}{4}$

$= 1$

g $\frac{2}{3} \times 12$

$= 8$

h $\frac{3}{4} \times 2\frac{1}{2}$

$= \frac{15}{8}$

$= 1\frac{7}{8}$

12 **a** $\frac{1}{2} \times \frac{3}{5} - \frac{1}{4}$

$= \frac{3}{10} - \frac{1}{4}$

$= \frac{12}{40} - \frac{10}{40}$

$= \frac{2}{40}$

$= \frac{1}{20}$

b $(\frac{3}{8} + \frac{1}{3}) \times \frac{3}{10}$

$= (\frac{9}{24} + \frac{8}{24}) \times \frac{3}{10}$

$= \frac{17}{24} \times \frac{3}{10}$

$= \frac{51}{240}$

c $\frac{1}{4} \times \frac{2}{3} + \frac{2}{3}$

$= \frac{1}{6} + \frac{2}{3}$

$= \frac{1}{6} + \frac{4}{6}$

$= \frac{5}{6}$

d $\frac{1}{3} \times \frac{1}{4} + \frac{3}{8}$

$= \frac{1}{12} + \frac{3}{8}$

$= \frac{2}{24} + \frac{9}{24}$

$= \frac{11}{24}$

e $\frac{5}{9} - \frac{3}{10} \times \frac{5}{6}$

$= \frac{5}{9} - \frac{1}{4}$

$= \frac{20}{36} - \frac{9}{36}$

$= \frac{11}{36}$

f $\frac{3}{5} + \frac{7}{10} - \frac{1}{2} \times \frac{4}{15}$

$= \frac{6}{10} + \frac{7}{10} - \frac{2}{15}$

$= \frac{13}{10} - \frac{2}{15}$

$= \frac{39}{30} - \frac{4}{30}$

$= \frac{35}{30}$

$= 1\frac{5}{30}$

$= 1\frac{1}{6}$

g $\frac{14}{15} \times \frac{5}{7} + \frac{4}{5}$

$= \frac{2}{3} + \frac{4}{5}$

$= \frac{10}{15} + \frac{12}{15}$

$= \frac{22}{15}$

$= 1\frac{7}{15}$

h $(\frac{2}{3} + \frac{5}{6}) \times \frac{1}{2}$

$= (\frac{4}{6} + \frac{5}{6}) \times \frac{1}{2}$

$= \frac{9}{6} \times \frac{1}{2}$

$= \frac{9}{12}$

i $\frac{3}{4} - \frac{2}{5} \times \frac{1}{2}$

$= \frac{3}{4} - \frac{1}{5}$

$= \frac{15}{20} - \frac{4}{20}$

$= \frac{11}{20}$

13 **a** $\frac{1}{4} \times \frac{1}{2}$

$= \frac{1}{8}$

b $\frac{4}{5} \times \frac{1}{12}$

$= \frac{1}{15}$

c $\frac{2}{3} \times \frac{1}{6}$

$= \frac{1}{9}$

d $\frac{12}{1} \times \frac{4}{1}$

$= 48$

e $\frac{15}{1} \times \frac{1}{5}$

$= 3$

f $\frac{4}{1} \times \frac{3}{2}$

$= 6$

g $\frac{1}{4} \times \frac{1}{2}$

$= \frac{1}{8}$

h $\frac{1}{2} \times \frac{10}{1}$

$= 5$

Problem-solving

14 $\frac{9}{10} \times 1\,000$ m = 900 m

$\frac{1}{3}$ of 900 m = 300 m

900 – 300 = 600 m

He still needs to walk 600 m.

15 $\frac{5}{12} \times 1\,740$

= 725

He has sold 725 mangoes.

16 $\frac{1}{5} \times \frac{320}{1}$

= 64 students do not walk to school.

17 $(2 \times \frac{3}{5}) + (2 \times \frac{7}{8})$

$= \frac{6}{5} + \frac{7}{4}$

$= \frac{24}{20} + \frac{35}{20}$

$= \frac{59}{20}$

$= 2\frac{19}{20}$ m

18 $\frac{3}{4} \div 5$

$= \frac{3}{4} \times \frac{1}{5}$

$= \frac{3}{20}$

19 $\frac{1}{8}$ of 2 000 g

= 250 g

2 000 g ÷ 250 g = 8

She can fill 8 bags.

20 6 glasses

What did you learn?

1 $\frac{3}{4} + \frac{2}{9}$

$= \frac{27}{36} + \frac{8}{36}$

$= \frac{35}{36}$

2 $\frac{7}{8} - \frac{1}{3}$

$= \frac{21}{24} - \frac{8}{24}$

$= \frac{13}{24}$

3 $\frac{1}{3} \times \frac{15}{7}$

$= \frac{5}{7}$

4 $\frac{3}{10} \div \frac{6}{1}$

$= \frac{3}{10} \times \frac{1}{6}$

$= \frac{1}{20}$

B Calculate with decimals

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1 **a** 3 weeks: 1.9 cm
4 weeks: 3.5 cm
8 weeks: 4 cm
12 weeks: 3.7 cm
14 weeks: 3.6 cm

b 3.6 cm – 1.9 cm = 1.7 cm

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2 **a** 0.4 + 0.37 = 0.77
b 1 + 0.89 = 1.89
c 0.1 + 2.39 = 2.49
d 4.61 + 0.22 = 4.83
e 0.3 + 1.3 = 1.6
f 21.3 + 34.24 = 55.54
g 2.48 + 2.78 = 5.26
h 5.24 + 6.67 = 11.91

3 **a** 18.22 + 71.66 = 89.88
b 0.47 + 13.3 + 8 = 21.77
c 17.54 + 11 + 0.7 = 29.24
d 7 + 6.342 + 5.09 = 18.432
e 72.1 + 82.45 + 23.24 = 177.79
f 420.02 + 3.76 + 0.2 = 423.98

4 **a** 65.47 – 13.25 = 52.22
b 14.26 – 8.01 = 6.25
c 59 – 36.05 = 22.95
d 1.75 – 0.6 = 1.15
e 1.76 – 0.98 = 0.78
f 1.75 – 0.36 = 1.39
g 0.99 – 0.9 = 0.09

h 12.07 – 3.9 = 8.17

5 **a** Estimate: 4 + 10 + 6 = 20
3.63 + 9.8 + 6.21 = 19.64

b Estimate: 14 + 7 + 10 = 31
14.3 + 6.7 + 9.69 = 30.69

c Estimate: 99 – 54 = 45
98.76 – 54.12 = 44.64

d Estimate: 18 – 10 = 8
18.23 – 10.15 = 8.08

e Estimate: 1 + 1 – 1 + 1 – 0 = 2
0.57 + 0.66 – 1 + 0.92 – 0.03 = 1.12

f Estimate: 64 – 24 + 39 = 79
64.37 – 24.39 + 38.5 = 78.48

6 **a** Tamaya

b Joshua: last number is incorrect
Kaylene: no decimal points are added, numbers are in the wrong columns
James: no + sign added
Linda: no + sign added

Problem-solving

7 1.84 – 1.6 = 0.24
Peter is 0.24 m taller.

8 23.47 + 38.05 + 29 = 90.52
The total distance travelled by the taxi is 90.52 km.

9 [(5.225 + 4.75) × 2] + [4.7 + (4.7 – 2.08)]
= (9.975 × 2) + (4.7 + 2.62)
= 19.95 + 7.32
= 27.27 m

10 120 cm – (32.5 cm + 48 cm)
= 120 – 80.5
= 39.5 cm
Yes, she has space to fit a box.

Multiplying decimals by 10, 100 or 1 000

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11

a	2.34 × 10 = 23.4	**b**	32.5 × 10 = 325
c	0.45 × 10 = 4.5	**d**	0.08 × 10 = 0.8
e	54.34 × 10 = 543.4	**f**	0.08 × 10 = 0.8
g	1.2 × 10 = 12	**h**	43.2 × 10 = 432
i	4.56 × 100 = 456	**j**	32.45 × 100 = 3245
k	9.45 × 100 = 945	**l**	9.21 × 100 = 921
m	0.08 × 100 = 8	**n**	4.32 × 1000 = 4320
o	1.2 × 1000 = 1200	**p**	0.8 × 1000 = 800
q	7.99 × 100 = 799	**r**	6.5 × 1000 = 6500
s	0.08 × 10 = 0.8	**t**	0.75 × 1000 = 750

12 $12.68 × 100 = $1 268
The timber will cost $1 268.

13 $12 345.50 ÷ 100 = $123.46
The cost per guest was $123.46.

14 $1.99 × 10 000 = $19 900.00
$19 900 was raised through ticket sales.

Multiplying a decimal by a whole number

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15 **a** $2 \times 0.6 = 1.2$ **b** $6 \times 0.9 = 5.4$
c $3 \times 3.2 = 9.6$ **d** $5 \times 4.1 = 20.5$
e $2 \times 0.3 = 0.6$ **f** $5 \times 0.1 = 0.5$
g $7 \times 0.4 = 2.8$ **h** $8 \times 1.12 = 8.96$
i $0.7 \times 8 = 5.6$ **j** $0.09 \times 3 = 0.27$
k $7.89 \times 4 = 31.56$ **l** $70.41 \times 3 = 211.23$

16 **a** $9 \times 22.3 = 200.7$ **b** $2.09 \times 4 = 8.36$
c $60.8 \times 8 = 486.4$ **d** $0.99 \times 9 = 8.91$

Problem-solving

17 $12 \times 1.8 = 21.6$
There is 21.6 L in the full box.

18 $\$4.55 \times 8 = \$36.40$
8 pens cost $36.40

19 **a** Shelly-Anne: $0.76 \times 2 = 1.52$ m/152 cm
Usain: $97.5 \times 2 = 195$ cm
Dwight: $88.9 \times 2 = 177.8$ cm
Al: $104.14 \times 2 = 208.28$ cm
b Al

What did you learn?

1 $\$10.00 - (\$2.62 + \$1.89 + \$2.00)$
$= \$10.00 - \$6.51$
$= \$3.49$
Micah will get $3.49 change.

2 $1450 - (450 + 980)$
$= 1450 - 1430$
$= 20$ g
The mass of the pan is 20 g.

3 **a** $0.25 \times 100 = 25$
b $1.2 \times 10 = 12$
c $23.09 \times 10 = 230.9$
d $0.08 \times 100 = 8$

4 **a** $3 \times 0.65 = 1.95$
b $9 \times 3.45 = 31.05$
c $8 \times 23.98 = 191.84$
d $9 \times 15.99 = 143.91$

C Calculate with percentages

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1 **a** 2% of 200 = 4
b 20% of 600 = 120
c 50% of 40 = 20
d 10% of 80 = 8
e 75% of 50 = 37.5
f 5% of 60 = 3
g 100% of 40 = 40

h 15% of 90 = 13.5

2 **a** 20% of \$120 = 24
120 – 24 = \$96.00

b 20% of \$280 = 56
280 – 56 = \$224

c 20% of \$195 = 39
195 – 39 = \$156

d 20% of \$220 = 44
220 – 44 = \$176

3 **a** 15% of \$600 = 90
600 + 90 = \$690

b 15% of \$260 = 39
260 + 39 = \$299

Problem-solving

4 40% of 280 = 112 m^2 for bananas
30% of 280 = 84 m^2 for vegetables
20% of 280 = 56 m^2 for a chicken coop
10% of 280 = 28 m^2 for flowers

5 15% of 20 000 = 3000 workers were retrenched.

6 $\frac{32}{100}$ of 300 cm = 96 cm
He cut off 96 cm.

7 28% of \$12 000 = \$3360

Profit and loss
Page 127

8

Cost price	Selling price	Profit
\$100	\$120	**a** \$20
\$75	\$100	**b** \$25
\$75	**c** \$90	\$15
\$120	**d** \$150	\$30
e \$70	\$80	\$10
f \$100	\$150	\$50

9

Bought for	Sold for	Loss
\$100	\$80	\$20
\$500	\$420	\$80
\$196.50	\$150	\$46.50
\$1 250	\$750	\$500
Total loss		\$646.50

Profit and loss as a percentage
Page 128

10 **a** $\frac{5}{20} \times 100 = 20\%$ profit

b $\frac{20}{50} \times 100 = 40\%$ loss

c $\frac{18}{90} \times 100 = 20\%$ profit

d $\frac{8}{80} \times 100 = 10\%$ profit

e $\frac{12}{200} \times 100 = 6\%$ loss

f $\frac{250}{1\,200} \times 100 = 21\%$ profit

g $\frac{120}{480} \times 100 = 25\%$ loss

Problem-solving

11 **a** $120 – $85 = $35

He made a profit of $35.00.

b $\frac{35}{120} \times 100 = 29\%$

12 (50¢ × 25) – (30¢ × 25)

= $12.50 – $7.50

= $5.00

$\frac{500}{1250} \times 100 = 40\%$

13 **a** $5.00 + $4.00 = $9.00

The cost price of the book was $9.00.

b $\frac{400}{900} \times 100 = 44\%$

14 **a** $2.25 × 24 = $54.00

$54.00 – $30.00 = $24.00

$24.00 was her total profit.

b $\frac{24}{30} \times 100 = 80\%$

She made a profit of 80%

Challenge

15 **a** 25% of $175 = 43.75

Bicycle cost: $218.75

b 25% of $12 = 3

Inner tubes cost = $15

c 25% of $45 = 11.25

Tyres cost = $56.25

What did you learn?

1 **a** 5% of 450 = $22\frac{1}{2}$

b 12% of 80 = 9 r 3

c 29% of 300 = 87

d 120% of 100 = 120

2 **a** Amount of money you make over and above the cost price.

b Amount of money you lose over and above the cost price.

c The amount of money something costs.

d Amount something is sold for.

3 **a** $95 – ($25 + $45)

= $95 – $70

= $25

$\frac{25}{95} \times 100 = 26\%$

A 26% profit was made.

b $ 2 999 – $ 1 480 = $ 1 519

$\frac{1\,519}{2\,999} \times 100 = 51\%$

There was a loss of 51%.

Topic 13 Review
Page 129
Key ideas and concepts

1 $\frac{3}{5} + \frac{1}{10}$

$= \frac{6}{10} + \frac{1}{10}$

$= \frac{7}{10}$

$\frac{3}{5} - \frac{1}{10}$

$= \frac{6}{10} - \frac{1}{10}$

$= \frac{5}{10}$

2 $\frac{1}{3}$ of 1 500 m

= 500 m

3 $\frac{3}{5} \times \frac{20}{33}$

$= \frac{4}{11}$

4 $\frac{1}{4} \div 20$

$= \frac{1}{4} \times \frac{1}{20}$

$= \frac{1}{80}$

5 0.5 + 1.72 = 2.22

1.39 – 0.47 = 0.92

6 $0.3 \times 12 = 3.6$

7 10% of 50 g

$= \frac{10}{100} \times \frac{50}{1}$

$= \frac{10}{2}$

= 5 g

8 $300.00 – $150.00

= $150.00

This can be the answer of a profit or loss calculation.

9 $\frac{150}{300} \times \frac{100}{1}$

$= \frac{150}{3}$

= 50%

Think, talk, write …

1 The business is then making money.

2 Items are old or not popular or too expensive.

3 Depends on whether they sell things above or below the cost price and if the items are selling in the shop.

4 Few T-shirts and make a big profit. The vendor then buys less merchandise to start with, which means the vendor loses less if the T-shirts don't sell.

Quick check

1 **a** $\frac{1}{3} - \frac{1}{4}$

$= \frac{4}{12} - \frac{3}{12}$

$= \frac{1}{12}$

b $\frac{5}{8} - \frac{1}{2}$

$= \frac{5}{8} - \frac{4}{8}$

$= \frac{1}{8}$

c $2\frac{1}{6} + 1\frac{1}{2}$

$= 3\frac{1}{6} + \frac{3}{6}$

$= 3\frac{4}{6} / 3\frac{2}{3}$

d $3\frac{1}{9} - 2\frac{1}{4}$

$= 2\frac{40}{36} - 2\frac{9}{36}$

$= \frac{31}{36}$

e $3 \times \frac{3}{7}$

$= \frac{9}{7}$

$= 1\frac{2}{7}$

f $\frac{1}{4} \times \frac{3}{9}$

$= \frac{3}{36}$

$= \frac{1}{9}$

2 **a** 23.47 + 38.43 + 13 = 74.9

b 12.09 + 14.765 = 26.855

c 143.09 – 14.245 = 128.845

d 35 – 19.99 = 15.01

e 4 × 12.4 = 49.6

f 9 × 34.09 = 306.81

3 **a** $\frac{14}{15} \times 100 = 93\%$

b $\frac{25}{50} \times 100 = 50\%$

c $\frac{17}{20} \times 100 = 85\%$

4 **a** 12% of 350 = 42

b 9% of 500 = 45

c 2% of 12 000 = 240

5 2 – 1.05 = 0.95 L / 950 ml

6 Total profit = 75 cents
75×54 = 4 050 cents / $40.50
$\frac{4050}{2700}$ = 1.5
= 150%

Topic 14 Measurement (3)

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The students will continue to improve their knowledge and skills when working with time, money and temperature. Assist the students where needed, but also allow the more proficient students to assist those who are in need of extra help.

A Time

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1	**a**	7:15	**b**	11:35	
	c	12:05	**d**	4:50	
2	**a**	05:23 p.m.		**b**	01:30 a.m.
	c	05:55 a.m.			
3	**a**	12:45	**b**	02:55	
	c	13:15	**d**	21:28	
4	**a**	8:18 a.m.		**b**	4:00 p.m.
	c	6:20 a.m.		**d**	1:30 p.m.
	e	1:30 a.m.		**f**	6:15 p.m.
	g	7:48 p.m.		**h**	12:30 a.m.

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5	d: 06:15	c: 08:45	e: 13:30
	a: 15:00	f: 19:30	b: 21:16

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1	**a**	45 minutes
	b	3 hours 30 minutes
	c	He had his lunch. It took him 50 minutes.
	d	Computer took the longest – 2 hours 40 minutes.
	e	Breakfast took 15 minutes.
2	**a**	New York on 12 February
		St Lucia on 22 February
		Accra 19 February
		Port of Spain on 17 February
		London on 9 February
	b	New York package took 12 days
		St Lucia package took 2 days
		Accra package took 5 days
		Port of Spain package took 7 days
		London package took 15 days
3	**a**	11:25 + 1:10 = 12:35
	b	8:05 + 0:45 = 8:50
	c	8:15 + 5:30 = 13:45
4	**a**	5:10 – 0:55 = 4:15
	b	7:55 – 2:35 = 5:20
5	**a**	11:42 – 11:07 = 35 minutes

b 12:05 – 10:32 = 1 hour 33 minutes
c 7:07 – 6:20 = 47 minutes

What did you learn?
1 10:05 a.m.; 4:30 p.m.
2 16:30 – 10:05 = 6 hours 25 minutes
3 16:30 – 0:45 = 15:45

B Money

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1 **a** United States of America, Barbados, East Caribbean States, Jamaica
b No, as there is an exchange rate.
2 **a** $4386.65
b $26 750.80
3 **a** Five dollars and ninety cents.
Sixty-five cents
One hundred and twenty-five dollars and fifty cents
Fifty dollars and five cents
Eighty-nine dollars
b You would enter the numbers and the decimal points, as well as the order of operation.
c $15.73 as you will need to round it off and make sure there is sufficient money put down.

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4 **a** $10 + 25¢ + 10¢
b $50 + $20 + $20 + $5 + (4 × $1) + 25¢ + 25¢ + 5¢
c $100 + $ 5 + $1 + $1 + (3 × 25¢) + 10¢ + 5¢
d (5 × $100) + $5 + (4 × $1) + (3 × 25¢) + 5¢
e (7 × $100) + $50
f (12 × $100)

Challenge

5 **a** $100 + $50 + $50 + $20 + $20
b $100 + $100 + $20 + $20 + $20
6 **a** $25.20 + $15.50 = $40.70
b $7.65 + $17.75 = $25.40
c $9.00 + $12.15 + $15.50 = $ 36.65
d $12.15 + $ 7.65 + $17.75 = $37.55
e $25.20 + $9.00 + $12.15 = $46.35
f $12.15 + $17.75 + $18.25 = $48.15
g $50.00 – ($15.50 + $17.75)
= $50.00 – $33.25
= $16.75
h **i** $25.20 + $9.00 + $12.15 + $15.50 + $7.65 + $17.75 + $18.25 = $105.50
ii 10% of $105.50 = $10.55
i $105.50 – $10.55 = $94.95

Problem-solving

7 **a** (2 × $6.75) + (4 × $3.64) + (10 × $8.23) + (6 × $6.86) + (3 × $8.50)
= $13.50 + $14.56 + $82.30 + $41.16 + $25.50

= $177.02

b $200.00 – $177.02 = $22.98

c $22.98 – ($17.50 + $5.00)
= $22.98 – $22.50
= 48 cents

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8 $150.00 – $85.00 = $65.00

9 10% of $60 = $6.00
$60 – $6 = $54.00
$54.00 × 5 = $270.00

10 $6 for 12 = 50 cents per mango
She sells each mango for $1, which means she makes a profit of 50 cents per mango.
50 × 54 = 27
She makes a profit of $27.00 after selling 54 mangoes.

11 $850 + $78 = $928 is the selling price

12 **a** $45 × 3 = $135.00 for the three days she worked

b ($45 × 5) + (3 × $10)
= $225 + $30
= $255

13 **a** 6 sausages for $11.99

b 500 g for $13.59

c 5 litres fruit punch for $6.99

What did you learn?

1 **a** $12.50 **b** $0.79
c $0.07

2 **a** $3.65 – $1.25 = $2.40 **b** $45 – $1.50 = $43.50
c $5.00 – $0.45 = $4.55

C Temperature

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1 **a** 0°C **b** 60°C
c 40°C

2 **a** –12°C **b** 48°C
c 28°C

Problem-solving

3 23°C – (–10°C) = 33°C difference in temperature.

What did you learn?

1 32°C – 20°C = 12°C

2 12°C – 23°C = –11°C

Topic 14 Review

Page 139

Think, talk, write …

There is no time like the present: there is no better time to do something than right now.
I am just killing time: I am just wasting time.
We should call it a day: we should say goodbye.
It is crunch time: it is time to work really hard.
This can help you save time: if you do this it will be quicker.

Quick check

1 8 o'clock at night: 20:00
Ten to 1: 12:50
9:00 p.m.: 21:00
18:00: 6:00 p.m.
Half past 12: 00:30

2 59 years old

3 4:50 – 3:25 = 1 hour 25 minutes

4 Paired work

5 Body temperature: 36°C
Freezing point of water: 0°C
Boiling point of water: 100°C

6 25.5°C – (–12°C)
= 37.5°C difference

Problem-solving

7 7°C – (–12°C) = 19°C

8 29°C – (–16°C) = 13°C

Topic 15 Data handling (2)

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This is a fun section to do with the class. Work together to complete it, using discussion as a means of learning. Assist the students who find graph interpretation difficult.

A Organising and representing data

Page 142

1 **a** Pop music is the favourite; Jazz is the least favourite.
b Reggae and Soul are the favourites; Pop is the least favourite.
c Reggae

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2 For example:
Most children did better in the prepared test.
Jarrod did better in the unprepared test.
There was a marked improvement in the results for: Lisa, Andrea and Owen.
No one achieved below 40% for the unprepared test.
No one achieved below 60% for the prepared test.

3 **a** 12 students **b** 10 students
c 19 students **d** 29 students

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4 **a** True **b** False
c This is the numbers that occur in C and D: 1, 2, 3, 5, 7, 9
d This is the numbers that occur in C and D only: 3, 5, 7
e 1 and 9 **f** 4

5 **a** False **b** True
c False **d** True

What did you learn?

1 Bar graph: to compare data
2 Bar graph: to compare data
3 Bar graph: to compare data
4 Bar graph: to compare data
5 Venn diagram: represents data with two overlapping sets
6 Line graph: shows changes over time

B Drawing graphs

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1 **a** Student's drawing
b From the first to the second month
c Steady growth of 2 cm per month for this period
2 **a** Student's drawing
b Shows changes over a short period of time

What did you learn?

1 Bar graph is made up of bars to compare data; line graph is plotted points that are joined together to show changes over time.
2 Bar graph is used to compare data; line graph is used to show changes.
3 Representation of data that is easy to interpret.

C Interpreting bar and line graphs

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1 **a** The graph will show the number of tigers in Rangata Forest Park.
b *y*-axis: number of tigers, *x*-axis: years
c There was a decrease in the number of tigers.
d After 2012 as the number of tigers increased after that date.
e From 2008 to 2012 there was a steady decrease in numbers of tigers. From 2012 to 2016 there has been a rapid increase in the number of tigers at the park.
2 **a** 10–14 seconds
b About 8 students
c Not very well
d No
e Time them as they wash their hands and record the information.

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3 **a** The cost of a Super Saver bundle
b It increases rapidly.
c Yes, it is a good option.
What other things does she use her phone for and how much it will cost to run.

4 The graph shows:
- most commonly owned technology devices
- data recorded from adults
- devices looked at were mobile phones, computers, tablets, MP3 players, game console, e-readers, portable game devices
- highest percentage was for mobile phones
- least popular was portable game devices.

5 No, not many teenagers own computers and tablets but rather the game console and MP3 player.

What did you learn?
To look at the title and information given on the *x*- and *y*-axes.
This information will tell you what information has been recorded on the graph.

D Probability

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1 **a** A: blue or yellow
B: yellow, brown, orange, red, green, blue
C: blue rectangle, red rectangle, orange circle, blue triangle, yellow parallelogram
D: $100, $50, $10, $5, $20
E: 1, 3, 2, 4

b A: either
B: any one
C: blue triangle is the higher possibility
D: $5 is the higher possibility
E: any one

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2 **a** Student's drawing with divisions of: red, black and white

b Student's drawing with divisions of: A, B, C, D

c Student's drawing with divisions of: one colour and one shape

3 **a** $10 airtime, new phone, $10 000, a chance to spin again, nothing, or new TV

b $10 airtime: it covers the most area on the spinner.

c $10 000: it covers the smallest amount of space on the spinner.

4 **a**

Heart	17
Diamond/yellow square	12
Star	13
Blue square	11
Triangle	14
Circle	13

b Student's drawing of a bar graph

c Heart

d Blue square

Challenge

5 **a** 36

b 12

What did you learn?

1 Heads or tails

2 Heads or tails, 2 heads, 2 tails

Topic 15 Review

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Quick check

1 Student's drawing of a bar graph; make sure there is a title and details for the *x*- and *y*-axis.

2 Student's drawing of a line graph; make sure there is a title and details for the *x*- and *y*-axis.

3 Maria studied for longer periods than Julie. The amount of hours shown on the *y*-axis is different on each graph.

Test yourself (3)

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1 **a** 50 000 **b** i: 45 368
c 29 **d** 23
e 3 100 **f** 0.01

2 **a** 461 – 157 = 304
b 6 016 – 3 800 = 2 216
c $x + 15 = 60$

3 **a** HCF is 6.
b 8:12 a.m.

4 **a** $\frac{15}{100} \times 100$
= 15%
b 270 ÷ 6 = 45 marbles in each row.
c The other 3 sides are: 7 cm, 6 cm, 6 cm
d 500 ÷ 25 = 20
e 87 × 60 = 5 220

5 **a** $\frac{3}{10}$ **b** $\frac{12}{40}$
c 0.3 **d** 70%

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6 $\frac{7}{8} - \frac{3}{4}$
$= \frac{7}{8} - \frac{6}{8}$
$= \frac{1}{8}$

7 $\frac{3}{4} \times 3 = \frac{9}{4}$
$2\frac{1}{4}$ pounds of flour are needed for 15 pizzas.

8 $\frac{1}{2}, \frac{2}{3}, \frac{5}{6}$

9 $\frac{2}{5}$ of 9 cm
$= \frac{18}{5}$
$= 3\frac{3}{5}$ cm

10 $2\frac{1}{3} - 1\frac{1}{2}$
$= 2\frac{2}{6} - 1\frac{3}{6}$
$= 1\frac{8}{6} - 1\frac{3}{6}$
$= \frac{5}{6}$ hours longer

11 \$0.95 – (3 × \$0.25)
= \$0.95 – \$0.75
= 20 cents

12 **a** False
b False
c True

13 **a** 7.26 – 3.4 = 3.86
b 5.09, 5.90, 50.9

c $\frac{4}{5} = \frac{8}{10} = 0.8$
d 7.5 + 43.2 + 135.8 = 186.5
e 0.45 × 8 = 3.6
f 2.5 kg

14 4:15 p.m.
15 34°C

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16 Angle ABC = right angle
Angle DEF = obtuse angle
Angle GHI = straight line
Angle JKL = acute angle
Angle OMN = reflex angle

17 **a** Out of one hundred
b 10%
c $18.00

18 $\frac{20}{30} \times 60 = 40$ minutes

19 2 hours 30 minutes

20 **a** $5 + $50 + $5 + $20 + $10 + $50 = $140
b $1 065.45

21 **a** $41.75 – $22.25 = $19.50
b Chantel: $22.25 + $7.75 = $30.00
Laura: $41.75 + $8.25 = $50.00

22 **a** (2 × 20) + (2 × 60)
= 40 + 120
= 160 cm
b 60 × 20 = 1 200 cm^2
c 52 × 12 = 624 cm^2

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23 **a** 9 × 4 = 36 m^2
One side on the square will be 6 cm.
b 3 × 5 = 15 m^2

24 6 × 3 = 18 cm (perimeter)
18 – (6 + 8)
= 18 – 14
= 4 cm
BC = 4 cm

25 4 000 ÷ 250 = 16
16 bottles of 250 ml will hold 4 L.

26 **a** 20 cm
b Heights of students
c 140 + 150 + 100 = 390
390 ÷ 3 = 130 cm

27 **a** 10:15
b 12:00
c 12:00 – 10:15 = 1 hour 45 minutes

28 **a** (1 50 × 2) + (7 × 40)
= 300 + 280
= 580 cm

Yes, he has enough wood.

b Yes, he has wood left over.
650 – 580 = 70 cm of wood

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29 Shape a is a net of a cone.

30 **a** Line graph, pictograph and bar graph

b Temperature in ºC

c Rainfall

d Using the 24-hour format, only the hours are shown.

e Temperature is between 25°C and 29°C for this period; sunny intervals, rain showers and cloudy; 0.1–0.3 mm rain; light breeze mainly from the east.

31 Student's drawing of a line graph