Answers

Section One — Number & Place Value

Pages 2-3 — Ordering Numbers

1) **8**
   4
   (1 mark for both correct)

2) **Thirty-one thousand, five hundred and sixty-three**
   (1 mark)

3) **4 728 942** *(1 mark)*

4) **632 527**, **623 581**, **623 458**
   (1 mark)

5) **319** should be circled. *(1 mark)*

6) 7841 **>** 7836
   230 799 **<** 231 030
   1 926 709 **<** 1 926 790
   (1 mark for all three correct)

7) **20 000** *(1 mark)*

8) **499 900** *(1 mark)*

9) **146 220, 146 202, 140 400, 140 391**
   (2 marks for order correct. Otherwise 1 mark for at least two consecutive numbers given in the correct order.)

Page 4 — Negative Numbers

1) Count on 10 places from –5: **5**
   Count back 7 places from 3: **–4**
   (1 mark for both correct)

2) Count on 12 places from –9:
   3 points *(1 mark)*

3) The answer is 17 less than 4.
   Count back 17 places from 4.
   It's 4 places from 4 to 0, then
   another 17 – 4 = 13 places.
   –13 °C *(1 mark)*

4) The answer is 2 less than –3.
   Count back 2 places from –3.
   –5 *(1 mark)*

5) To get from 3 to 0 you count
   3 places. To get from 0 to –8
   you count 8 places.
   So the difference between
   £3 and –£8 is: 3 + 8 = **£11**
   (1 mark)

Page 5 — Roman Numerals

1)

(1 mark)

2) X = 10, so XXX = 30.
   V = 5 and I = 1, so VI = 6.
   So XXXVI = 30 + 6 = **36**.
   (1 mark)

3) M = 1000 so MM = 2000.
   I = 1 and V = 5, so IV = 4.
   So 2000 + 4 = **2004**. *(1 mark)*

4) M = 1000 and CM = 900.
   X = 10 so XX = 20, and I = 1.
   So 1000 + 900 + 20 + 1 = **1921**
   should be circled. *(1 mark)*

Page 6 — Decimals

1) **3** *(1 mark)*

2) Four thousandths is less
   than four hundredths,
   so 0.004 **<** 0.04. *(1 mark)*
   Three hundredths is less
   than nine hundredths,
   so 0.69 **>** 0.634. *(1 mark)*

3) **0.23** should be circled. *(1 mark)*

4) 0.528 < 0.591, so **Ravi's**
   lunch is heavier. *(1 mark)*

5) **0.6, 0.493, 0.421, 0.405**
   (2 marks for order correct. Otherwise 1 mark for at least two consecutive numbers given in the correct order.)

Page 7 — Rounding

1) **4830**
   62 790
   (1 mark for both correct)

2) **129 000** should be circled.
   (1 mark)

3) **7100**
   300 000
   (1 mark for both correct)

4) **16 m** *(1 mark)*

5) **7.2** *(1 mark)*
   221.2 *(1 mark)*

Pages 8-9 — Mixed Practice

1) **Two hundred and seventeen thousand, six hundred and seventy-three** *(1 mark)*

2) Write how many stamps each
   person has as a number:
   Jess has 14 429, and
   Padma has 14 011.
   14 429 > 14 011,
   so **Jess** has more stamps.
   (1 mark)

3) 1.2 = 1.20 and 1.20 < 1.24,
   so **Hans** is taller.
   (1 mark)

4) **39 703, 42 561, 42 893, 43 172**
   (2 marks for order correct. Otherwise 1 mark for at least two consecutive numbers given in the correct order.)

5) **0.04** *(1 mark)*

6) You count back 8 places
   to get from –2 to –10,
   so –2 **–** 8 = –10. *(1 mark)*
   You count on 5 places
   to get from –11 to –6,
   so –6 = –11 **+** 5. *(1 mark)*

7) When rounded to the nearest
   whole number:
   14.4 rounds to 14.
   15.5 rounds to 16.
   15.3, **14.5** and **14.7** round to 15,
   so they should be circled.
   (1 mark for all correct)

8) M = 1000 and CM = 900.
   V = 5, and I = 1 so II = 2.
   So 1000 + 900 + 5 + 2 = **1907**.
   (1 mark)
   M = 1000 and CM = 900.
   X = 10, and IX = 9.
   So 1000 + 900 + 10 + 9 = **1919**.
   So **Lawrence's** school was
   built first. *(1 mark)*

9) To get from –11 to 0
   you count 11 places.
   To get from 0 to 14
   you count 14 places.
   So the difference between
   –11 °C and 14 °C is:
   11 + 14 = **25 °C** *(1 mark)*

Answers

Section Two — Calculations

Pages 10-12 — Written Adding and Subtracting

1)
```
    3 2 2 7
  + 5 6 4 3
  ─────────
    8 8 7 0   (1 mark)
        ₁
```
```
    ⁴9̷¹0̷¹2̷  ¹
    5̷ 0̷ 2̷ 3̷ 6
  −     4 2 8 7
  ───────────
    4 5 9 4 9   (1 mark)
```

2)
```
    8 6 7
  − 2 5 3
  ───────
    6 1 4   (1 mark)
```

3)
```
    4 1 2 8 5
  + 5 9 9 9 8
  ───────────
  1 0 1 2 8 3   (1 mark)
    ₁ ₁ ₁ ₁
```
Notice that 59 998 is very close to 60 000, so it's easier to do 41 285 + 60 000 = 101 285 and then subtract the 2 to get 101 283.

```
    ²3̷ ¹1 2 ³4̷ ¹1
  −     4 0 0 3
  ─────────────
    2 7 2 3 8   (1 mark)
```
Notice that 4003 is very close to 4000, so it's easier to do 31 241 − 4000 = 27 241 and then subtract the 3 to get 27 238.

4)
```
    ⁷8̷ ¹⁴5̷ . ¹2
  −   4 9 . 7
  ───────────
    3 5 . 5
```
So **35.5** should be circled. *(1 mark)*
Notice that 49.7 is very close to 50, so it's easier to do 85.2 − 50 = 35.2 and then add the 0.3 back on to get 35.5.

5)
```
    1 1 . 5 9
  + 2 0 . 7 0
  ───────────
    3 2 . 2 9   (1 mark)
          ₁
```
```
    3 ⁷8̷ . ¹7 1
  −     6 . 8 0
  ─────────────
    3 1 . 9 1   (1 mark)
```

6)
```
    1 7 8 5
  + 1 0 0 5
  ─────────
    2 7 9 0   (1 mark)
        ₁
```
Subtract what Francis spends:
```
    ¹6̷¹8̷
    2̷ 7̷ 9̷ ¹0
  − 1 9 9 9
  ─────────
      7 9 1
```
Francis has **£791** left. *(1 mark)*
Notice that 1999 is very close to 2000, so it's easier to do 2790 − 2000 and then add the 1 back on.

7)
```
    7 ³4̷ . ¹1
  − 2 1 . 5
  ─────────
    5 2 . 6   (1 mark)
```

8)
```
    1 1 . 9 5
  + 3 4 . 9 9
  ───────────
    4 6 . 9 4   = £46.94
        ₁ ₁
```
(1 mark)
```
    3 4 . 9 9
  − 1 1 . 9 5
  ───────────
    2 3 . 0 4   = £23.04
```
(1 mark)

9)
```
    ¹9̷¹0   ⁹1̷0
    2̷ 0̷ . 0̷ ¹0
  −     7 . 5 2
  ─────────────
    1 2 . 4 8
```
So 7.52 + **12.48** = 20 *(1 mark)*

10)
```
    2 5 3 2
  +   2 9 5
  ─────────
    2 8 2 7
        ₁
```
So Iwan has travelled 2827 miles in his first two flights. Subtract this from 3205 to find the length of his last flight:
```
    ²3̷ ¹2 ¹9̷⁰1̷0
    3̷ 2 0̷ ¹5
  − 2 8 2 7
  ─────────
      3 7 8
```
So his last flight is **378 miles**.
(2 marks for the correct answer. Otherwise 1 mark for the correct addition.)

Pages 13-14 — Written Multiplication

1)
```
      4 3 6
    ×     5
    ───────
    2 1 8 0   (1 mark)
      ₁ ₃
```

2)
```
        2 4 3
    ×     1 7
    ─────────
    1 7 ₀0 ₂1
    2 4 3 0
    ─────────
    4 1 3 1
        ₁
```
(2 marks for the correct answer. Otherwise 1 mark for working using long multiplication with no more than one error.)

```
      2 2 4 3
    ×     4 1
    ─────────
      2 2 4 3
    8 9 ₁7 ₁2 0
    ─────────
    9 1 9 6 3
    ₁
```
(2 marks for the correct answer. Otherwise 1 mark for working using long multiplication with no more than one error.)

3)
```
        4 8
    ×   1 2
    ───────
      9 ₁6
    4 8 0
    ───────
    5 7 6   = 576 hours
    ₁
```
(2 marks for the correct answer. Otherwise 1 mark for working using long multiplication with no more than one error.)

4)
```
      2 7 0
    ×   2 8
    ───────
    2 1 ₅6 0
    5 ₄4 0 0
    ───────
    7 5 6 0
```
(2 marks for the correct answer. Otherwise 1 mark for working using long multiplication with no more than one error.)

5)
```
      1 3 6 2
    ×     1 7
    ─────────
    9 ₂5 ₄3 ₁4
    1 3 6 ₂2 0
    ─────────
    2 3 ₁1 5 4   (1 mark)
    ₁
```

Answers

6) Find the number of oranges in each crate:

```
    1 8
×     8
1 4₆4   (1 mark)
```

Then find the number of oranges in 27 crates:

```
    1 4 4
×     2 7
1 0₃0₂8
2 8 8 0
3 8 8 8
```

So they order **3888** oranges. *(1 mark)*

7)
```
      2 1 5 3
×         2 5
1 0 7₂6₁5
4 3₁0 6 0
5 3 8₁2 5   minutes
```

(2 marks for the correct answer. Otherwise 1 mark for working using long multiplication with no more than one error.)

Pages 15-16 — Written Division

1)
```
      1 7  = £17
8) 1 ¹3 ⁵6
```
(1 mark)

2)
```
    8 7 2
6) 5 ⁵2 ⁴3 ¹2   (1 mark)
```

3)
```
    6 6 6  r 2
3) 2 ²0 ²0 ²0
```
So there are **666** full packs. *(1 mark)*

There are 2 balls left over, so **1** more ball is needed to make a pack of 3. *(1 mark)*

4)
```
      2 2   (1 mark)
16) 3 ³5 ³2
```

5)
```
      1 1 1  remainder 9
49) 5 ⁵4 ⁵4 ⁵8
```
(2 marks for the correct answer. Otherwise 1 mark for getting 111 with an incorrect remainder.)
For questions 4 and 5, you could have used long division instead of short division.

6)
```
        1 1  r 25
75) 8 ⁸5 ¹⁰0
```
Heather can make **11** jars.
(2 marks for the correct answer. Otherwise 1 mark for correctly dividing 850 by 75.)

7)
```
      5 6 5
5) 2 ²8 ³2 ²5
```
So 5 × **565** = 2825 *(1 mark)*

8)
```
      7 6  r 5
10) 7 ⁷6 ⁶5
```
So the remainder is **5**. *(1 mark)*

765 ÷ 10 = **76.5** *(1 mark)*

Pages 17-18 — Multiplying & Dividing by 10, 100 & 1000

1) 277 × 10 = **2770** *(1 mark)*
5896 ÷ 1000 = **5.896** *(1 mark)*

2) 100 guests = 10 × 10 guests
10 × £35 = **£350** *(1 mark)*

3) 6.7 × 1000 = **6700** *(1 mark)*
21.5 ÷ 100 = **0.215** *(1 mark)*

4)
```
25.4 × 100        0.254
25.4 ÷ 10         254
25.4 ÷ 100        2540
25.4 × 10         2.54
```
(2 marks for all lines drawn correctly. Otherwise 1 mark for 2 lines drawn correctly.)

5) 3.914 × **1000** = 3914 *(1 mark)*
1.12 ÷ 10 = 0.112 *(1 mark)*

6) 0.9 ÷ 100 = **0.009** *(1 mark)*
5.37 × 1000 = **5370** *(1 mark)*

7) Rita needs 225 g × 10
= 2250 g of sugar.
There are 1000 g in 1 kg,
so 2250 ÷ 1000 = **2.25 kg**
(1 mark)

8) 100 × £6.50 = **£650** *(1 mark)*
300 tickets cost
3 × 100 × £6.50 = 3 × £650
```
    6 5 0
×     3
1 9 5 0
    1
```
So 300 tickets cost **£1950**
(1 mark)

Page 19 — Multiplying and Dividing with Decimals

1) 4 × 8 = 32. 4 is 10 times bigger than 0.4, so the answer is 10 times too big.
So 0.4 × 8 = 32 ÷ 10 = **3.2**.
(1 mark)

7 × 9 = 63. 7 is 100 times bigger than 0.07, so the answer is 100 times too big.
So 0.07 × 9 = 63 ÷ 100 = **0.63**.
(1 mark)

2) 28 ÷ 4 = 7. 28 is 10 times bigger than 2.8, so the answer is 10 times too big.
So 2.8 ÷ 4 = 7 ÷ 10 = **0.7**.
(1 mark)

84 ÷ 7 = 12. 84 is 100 times bigger than 0.84, so the answer is 100 times too big.
So 0.84 ÷ 7 = 12 ÷ 100 = **0.12**.
(1 mark)

3)
```
    1 3 0
×       8
1 0 4 0
    2
```
130 is 100 times bigger than 1.30, so the answer is 100 times too big.
So 1.30 × 8 = 1040 ÷ 100
= 10.40.
So Lola makes **£10.40**. *(1 mark)*

4)
```
      6 0 5
4) 2 ²4 2 ²0
```
2420 is 100 times bigger than 24.20, so the answer is 100 times too big.
24.20 ÷ 4 = 605 ÷ 100 = 6.05.
So each ticket cost **£6.05**.
(1 mark)

Pages 20-21 — Order of Operations

1) 8 × (15 − 13) = 8 × 2 = **16**
(1 mark)
18 + 24 ÷ 6 = 18 + 4 = **22**
(1 mark)

Answers

2) Try:
   $(9 - 7) - 2 = 2 - 2 = 0$
   — incorrect answer
   $9 - (7 - 2) = 9 - 5 = 4$
   — correct answer, so correct
   calculation is $9 - (7 - 2) = 4$
   (1 mark)

3) $10 \times 3 - 5 = 30 - 5 = 25$
   $4 + 1 \times 5 = 4 + 5 = 9$
   $5 \times (2 + 3) = 5 \times 5 = 25$
   $10 \times 3 - 5$ and $5 \times (2 + 3)$
   should be circled. *(1 mark)*

4) **No:**
   $6 \times 8 + 32 \div 4 = 48 + 8 = 56$
   (1 mark)

5) $60 - 18 = 42$. *(1 mark)*
   Share this equally between
   three people: $42 \div 3 = 14$
   So Daisy gets **14** marbles.
   (1 mark)

6)
```
      7 5
  ×   1 2
  1 5 0
   1  1
  7 5 0
  9 0 0
    1
```
   So 12 bread rolls cost £9.00.
   The total cost is
   £9 + £4.80 = £13.80. *(1 mark)*
```
      2 3 0  = £2.30
  6)1 13 18 0
```
   So each person pays **£2.30**.
   (1 mark)
   *Alternatively, you could have
   shared the price of the salad
   between 6, and added on the
   price of two bread rolls.*

7) Two bags of sweets
   cost $2 \times £1.40 = £2.80$.
   So in total she spends:
```
    2 . 8 0
  + 2 . 1 5
    4 . 9 5   (1 mark)
```
   Then find her change from £10:
```
     9 10  9 10
   X 0 . 0  0
  -   4 . 9 5
      5 . 0 5
```
   So Izumi gets **£5.05** change.
   (1 mark)
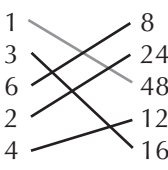
Page 22 — Estimating and Inverses

1) E.g. $60 \times 20 = 1200$ *(1 mark)*

2) Estimate the answer, e.g.
   $50 \div 10 = 5$, so **5.1** should
   be circled. *(1 mark)*

3) E.g. **4 × 15 is the most sensible
   because the numbers are easy
   to use and it will give a more
   accurate estimate than using
   5 × 20.** *(1 mark)*

4) Use multiplication (the inverse
   of division) to check:
```
      6 4
  ×   1 1
      6 4
    6 4 0
    7 0 4   (1 mark)
    1
```

Pages 23-24 — Multiples and Factors

1) **3**, **12** and **21** should be circled.
   (1 mark)

2)
```
  1        8
  3        24
  6        48
  2        12
  4        16
```
   *(1 mark for all lines drawn
   correctly.)*

3) Factors of 18:
   1, 2, 3, 6, 9, 18
   Factors of 24:
   1, 2, 3, 4, 6, 8, 12, 24
   Common factors are
   1, **2**, **3** and **6**.
   *(2 marks for all four correct
   common factors. Otherwise one
   mark for finding all of the correct
   factors of either number.)*

4) Multiples of 4:
   4, 8, 12, 16, 20, 24, 28, 32, 36...
   Multiples of 6:
   6, 12, 18, 24, 30, 36, ...
   So the first three common
   multiples are **12**, **24** and **36**.
   *(2 marks for all three
   correct common multiples.
   Otherwise 1 mark for finding
   one correct multiple.)*

5) Multiples of 4 between
   48 and 58 are 48, 52, 56.
   Only 56 has 7 as a factor,
   so Henry's number is **56**.
   (1 mark)

6) Factors of 28:
   1, 2, 4, 7, 14, 28
   Factors of 48:
   1, 2, 3, 4, 6, 8, 12, 16, 32, 48
   The common factors are
   1, 2 and 4.
   So the correct card is **4**. *(1 mark)*

   Multiples of 9:
   9, 18, 27, 36, 45, 54 ,63, 72...
   Multiples of 12:
   12, 24, 36, 48, 60, 72...
   The common multiples are
   36, 72...
   The only one that can be made
   with two cards is **36**. *(1 mark)*

7) **YES** should be circled.
   E.g. **8 divides exactly by 2 and 4.
   So if a number divides exactly
   by 8 it will also divide exactly
   by 2 and 4, so 2 and 4 are factors.**
   (1 mark)

Page 25 — Prime Numbers

1) **11** and **17** should be circled.
   (1 mark)

2) Factors of 12: 1, 2, 3, 4, 6, 12
   2 and 3 are prime, so the
   number could be **2** or **3**.
   (1 mark)

3) $7 \times 11 = 77$ *(1 mark)*
   $30 = 2 \times 15 = 2 \times 3 \times 5$
   $2 \times 3 \times 5 = 30$ *(1 mark)*

4) Find the prime factors of 110:
   $110 = 10 \times 11 = 2 \times 5 \times 11$
   So the ages are **2**, **5** and **11**.
   *(2 marks for all three ages
   correct. Otherwise 1 mark
   for a method to find the
   prime factors of 110.)*

Answers

Page 26 — Square and Cube Numbers

1) $16 = 4 \times 4$, so the next two square numbers are
$5 \times 5 = $ **25** and
$6 \times 6 = $ **36**. *(1 mark)*

2) **1**, **8** and **27** should be circled. *(1 mark)*

3) $3^3 = 3 \times 3 \times 3 = 27$
$5^2 = 5 \times 5 = 25$
$27 - 25 = 2$.
So he is thinking of **27** and **25**. *(1 mark)*

4) $6^2 = 6 \times 6 = 36$
$4^3 = 4 \times 4 \times 4 = 64$
$36 + 64 = $ **100** *(1 mark)*

 YES should be circled — 100 is a square number. *(1 mark)*

 NO should be circled — 100 is not a cube number. *(1 mark)*

Pages 27-28 — Mixed Practice

1) $398 \times 1.9 \approx 400 \times 2 = 800$.
This estimate isn't very close to 672.6, so Ron isn't correct. *(1 mark)*

2) Factor pairs of 35 are:
1 and 35, **5 and 7**. *(1 mark)*

3)
```
   2 7 3 5
+    9 6 8
 ─────────
   3 7 0 3   pies   (1 mark)
   1 1 1
```
```
   3 ⁶7⁹⁰ ¹3
 −   1 5 6
 ─────────
   3 5 4 7   (1 mark)
```

4) **23** and **43** should be circled. *(1 mark)*

 $9 \times 9 = 81$, so **81** is a square number.
$3 \times 3 \times 3 = 27$, so **27** is a cube number.
(1 mark for both correct)

5) $36.6 \times 70 = $ **2562** *(1 mark)*
$366 \times 7000 = $ **2 562 000** *(1 mark)*

6)
```
   1 8
 ×   4
 ─────
   7₃2
```
The 72 chocolates are shared between 9 people. *(1 mark)*
$72 \div 9 = 8$. So each person gets **8** chocolates. *(1 mark)*.

7) Factors of 12: 1, 2, 3, 4, 6, 12
Factors of 20: 1, 2, 4, 5, 10, 20
Common factors are **1**, **2** and **4**. *(1 mark)*

 Two-digit multiples of 12:
12, 24, 36, 48, 60, 72, 84, 96
Two-digit multiples of 20:
20, 40, 60, 80
The only two-digit common multiple is **60**. *(1 mark)*

8)
```
    4 1 3
 4)1 ¹6 5 ¹2
```
1652 is 100 times bigger than 16.52, so the answer is 100 times too big.
$16.52 \div 4 = 413 \div 100 = 4.13$.
So each person pays **£4.13**. *(1 mark)*

9)
```
     4 0 7 9
 ×       3 3
 ───────────
   1 2 2₂3₂7
 1 2 2₂3₂7 0
 ───────────
 1 3 4 6 0 7
         1
```
(2 marks for the correct answer. Otherwise 1 mark for working using long multiplication with no more than one error.)

```
      2 1 1
 17)3 5 8 7
   − 3 4
   ─────
     1 8
   − 1 7
   ─────
       1 7
     − 1 7
     ─────
         0
```
(2 marks for the correct answer. Otherwise 1 mark for working using long division with no more than one error.)

Section Three — Fractions, Decimals & Percentages

Pages 29-30 — Fractions

1) $27 \div 5 = 5$ remainder 2, so $5\frac{2}{5}$ should be circled. *(1 mark)*

2) There are 8 eighths in a whole, so there are
$3 \times 8 = 24$ eighths in 3. There are $24 + 1 = 25$ eighths in total.
So $3\frac{1}{8} = \frac{25}{8}$ *(1 mark)*

3)
$\frac{23}{6}$ → $3\frac{5}{6}$
$\frac{19}{6}$ → $3\frac{1}{6}$
$\frac{31}{6}$ → $5\frac{1}{6}$
and $4\frac{5}{6}$
(1 mark for all lines correct)

4) $\frac{6}{10}$ and $\frac{9}{15}$ should be circled. *(1 mark)*

5) $\frac{1}{4} = \frac{5}{20}$, $\frac{5}{6} = \frac{15}{18}$, $\frac{3}{10} = \frac{15}{50}$
(2 marks for all three correct. Otherwise 1 mark for two correct.)

6) E.g. 24 is a common multiple of 3 and 8.
$\frac{2}{3} = \frac{2 \times 8}{3 \times 8} = \frac{16}{24}$ *(1 mark)*
$\frac{5}{8} = \frac{5 \times 3}{8 \times 3} = \frac{15}{24}$ *(1 mark)*

7) The circle has $\frac{2}{8}$ shaded,
the square has $\frac{3}{9}$ shaded,
the triangle has $\frac{4}{9}$ shaded and
the rectangle has $\frac{3}{12}$ shaded.
Since $\frac{2}{8}$ and $\frac{3}{12}$ are equivalent
to $\frac{1}{4}$, the **circle** and the
rectangle should be circled.
(1 mark)

Answers

Page 31 — Comparing Fractions

1) Make equivalent fractions with the same denominator:
E.g. $\frac{3}{8} = \frac{6}{16}$, $\frac{7}{10} = \frac{14}{20}$ and $\frac{7}{12} = \frac{21}{36}$. So $\frac{7}{16}$ $\frac{7}{10}$ and $\frac{25}{36}$ should be circled.
(2 marks for all three correct. Otherwise 1 mark for two correct.)

2) Make equivalent fractions with the same denominator:
E.g. $\frac{3}{5} = \frac{6}{10}$, $\frac{1}{2} = \frac{5}{10}$ and $\frac{7}{10}$.
So the order is: $\frac{1}{2}$, $\frac{3}{5}$, $\frac{7}{10}$
(1 mark)

3) Make equivalent fractions with the same denominator:
E.g. $\frac{7}{4} = \frac{42}{24}$, $\frac{5}{12} = \frac{10}{24}$, $\frac{9}{8} = \frac{27}{24}$ and $\frac{5}{6} = \frac{20}{24}$.
So the order is: $\frac{7}{4}$, $\frac{9}{8}$, $\frac{5}{6}$, $\frac{5}{12}$
(2 marks for the correct order. Otherwise 1 mark for finding equivalent fractions.)

4) $\frac{3}{4} = \frac{12}{16}$, so $\frac{3}{4} > \frac{11}{16}$ *(1 mark)*
$\frac{5}{6} = \frac{15}{18}$, so $\frac{5}{6} < \frac{16}{18}$ *(1 mark)*

5) Make equivalent fractions with the same denominator:
E.g. $\frac{3}{4} = \frac{9}{12}$, $\frac{10}{24} = \frac{5}{12}$, $\frac{5}{6} = \frac{10}{12}$, $\frac{7}{4} = \frac{21}{12}$ and $\frac{15}{36} = \frac{5}{12}$.
So $\frac{10}{24}$ and $\frac{15}{36}$ should be circled. *(1 mark)*

Pages 32-33 — Multiplying Fractions

1) $24 \div 4 = 6$
$6 \times 3 = 18$
So $\frac{3}{4} \times 24 = $ **18** *(1 mark)*

2) $2 \times 10 = 20$
$10 \div 5 = 2$
So $2\frac{1}{5} \times 10 = 20 + 2 = $ **22**
(1 mark)

3) $\frac{1}{3} \times \frac{1}{2} = \frac{1}{3 \times 2} = \frac{1}{6}$
$\frac{1}{5} \times \frac{1}{4} = \frac{1}{5 \times 4} = \frac{1}{20}$
(1 mark for both correct)

4) $1 \times 100 = 100$
$100 \div 10 = 10$
$3 \times 10 = 30$
So $1\frac{3}{10} \times 100 = 100 + 30 = $ **130**
(1 mark)

5) $250 \div 5 = 50$
$50 \times 3 = 150$
So $\frac{3}{5}$ of 250 g = **150 g** *(1 mark)*

6) $\frac{3}{8} \times \frac{3}{5} = \frac{3 \times 3}{8 \times 5} = \frac{9}{40}$ *(1 mark)*

7) $1 \times 48 = 48$
$48 \div 4 = 12$
So $1\frac{1}{4} \times 48 = 48 + 12 = $ **60**
(1 mark)

8) $\frac{2}{3} \times \frac{4}{5} = \frac{2 \times 4}{3 \times 5} = \frac{8}{15}$ **km**
(1 mark)

9) Total amount $= 1\frac{2}{3}$ kg $\times 5$
$1 \times 5 = 5$
$\frac{2}{3} \times 5 = \frac{2 \times 5}{3} = \frac{10}{3} = 3\frac{1}{3}$
So $1\frac{2}{3} \times 5 = 5 + 3\frac{1}{3} = $ **$8\frac{1}{3}$ kg**
(1 mark)

Pages 34-35 — Adding and Subtracting Fractions

1) $\frac{5}{9} + \frac{8}{9} - \frac{6}{9} = \frac{5 + 8 - 6}{9} = \frac{7}{9}$
(1 mark)

2) $\frac{2}{11} + \frac{8}{11} = \frac{2 + 8}{11} = \frac{10}{11}$ *(1 mark)*

$\frac{17}{20} - \frac{3}{10} = \frac{17}{20} - \frac{6}{20}$
$= \frac{17 - 6}{20} = \frac{11}{20}$ *(1 mark)*

3) $\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{4 + 1}{8} = \frac{5}{8}$
(1 mark)

$\frac{4}{5} - \frac{4}{15} = \frac{12}{15} - \frac{4}{15} = \frac{12 - 4}{15}$
$= \frac{8}{15}$ *(1 mark)*

4) E.g. $\frac{9}{10} - \frac{3}{4} = \frac{18}{20} - \frac{15}{20}$
$= \frac{18 - 15}{20} = \frac{3}{20}$ *(1 mark)*

5) $\frac{11}{12} + \frac{5}{8} = \frac{22}{24} + \frac{15}{24}$
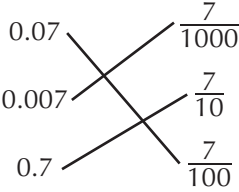$= \frac{22 + 15}{24} = \frac{37}{24} = 1\frac{13}{24}$
(1 mark)

6) E.g. $\frac{1}{8} + \frac{5}{6} = \frac{3}{24} + \frac{20}{24}$
$= \frac{3 + 20}{24} = \frac{23}{24}$
(2 marks for the correct answer. Otherwise 1 mark for correct working.)

7) $2\frac{1}{5} - \frac{2}{3} = \frac{11}{5} - \frac{2}{3}$
$= \frac{33}{15} - \frac{10}{15} = \frac{33 - 10}{15} = \frac{23}{15}$
(2 marks for the correct answer. Otherwise 1 mark for correct working.)

8) $1\frac{1}{4} + 2\frac{1}{3} = \frac{5}{4} + \frac{7}{3}$
$= \frac{15}{12} + \frac{28}{12} = \frac{15 + 28}{12} = \frac{43}{12}$
$= 3\frac{7}{12}$
(2 marks for the correct answer. Otherwise 1 mark for correct working.)
Alternatively, you could have added the whole number and fraction parts of the mixed numbers separately, then combined them at the end.

9) $1\frac{7}{10} - \frac{1}{4} = \frac{17}{10} - \frac{1}{4}$
$= \frac{34}{20} - \frac{5}{20} = \frac{34 - 5}{20}$
$= \frac{29}{20} = 1\frac{9}{20}$
(2 marks for the correct answer. Otherwise 1 mark for correct working.)
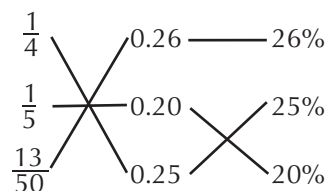
Page 36 — Dividing Fractions

1) $\frac{1}{2} \div 6 = \frac{1}{2 \times 6} = \frac{1}{12}$ *(1 mark)*
$\frac{1}{3} \div 8 = \frac{1}{3 \times 8} = \frac{1}{24}$ *(1 mark)*

2) $\frac{4}{5} \div 3 = \frac{4}{5 \times 3} = \frac{4}{15}$ *(1 mark)*
$\frac{5}{9} \div 5 = \frac{5}{9 \times 5} = \frac{5}{45} = \frac{1}{9}$
(1 mark)
The 5 in the numerator cancels with the 5 in the denominator.

3) $\frac{3}{5} \div 2 = \frac{3}{5 \times 2} = \frac{3}{10}$ *(1 mark)*

4) $\frac{7}{12} \div 4 = \frac{7}{12 \times 4} = \frac{7}{48}$ **km**
(1 mark)

Answers

Pages 37-38 — Equivalent Fractions and Decimals

1)

(1 mark)

2) $\dfrac{11}{1000}$ should be circled.
(1 mark)

3) $\dfrac{3}{100} = 0.03$, so $0.3 > \dfrac{3}{100}$
(1 mark)

$\dfrac{9}{1000} = 0.009$, so $0.09 > \dfrac{9}{1000}$
(1 mark)

4) $0.417 = \dfrac{417}{1000}$, $\dfrac{39}{100} = \mathbf{0.39}$

$\dfrac{249}{1000} = \mathbf{0.249}$, $0.63 = \dfrac{63}{100}$
(2 marks for all four correct. Otherwise 1 mark for two or three correct.)

5) $\dfrac{111}{200} = \dfrac{555}{1000}$ *(1 mark)*

$\dfrac{111}{200} = \mathbf{0.555}$ *(1 mark)*

6) $\dfrac{97}{500} = \dfrac{194}{1000} = \mathbf{0.194}$
(1 mark)

7) $\dfrac{8}{25} = \dfrac{32}{100} = \mathbf{0.32}$ *(1 mark)*

8) $\dfrac{1}{5} = \dfrac{2}{10} = \mathbf{0.2}$

$1\dfrac{7}{20} = 1\dfrac{35}{100} = \mathbf{1.35}$

$\dfrac{49}{50} = \dfrac{98}{100} = \mathbf{0.98}$

$\dfrac{7}{250} = \dfrac{28}{1000} = \mathbf{0.028}$
(2 marks for all four correct. Otherwise 1 mark for two or three correct.)

Page 39 — Fractions, Decimals and Percentages

1) $\dfrac{11}{20} = \dfrac{55}{100} = 0.55 = \mathbf{55\%}$
(1 mark)

2)

(2 marks for all of the lines correct. Otherwise 1 mark for four or more lines correct.)

3) Sample working:
$\dfrac{15}{20} = \dfrac{75}{100} = 0.75$, $6\% = 0.06$,
$\dfrac{6}{25} = \dfrac{24}{100} = 0.24$,
$\dfrac{35}{50} = \dfrac{70}{100} = 0.7$,
$60\% = 0.6$, $\dfrac{3}{5} = 0.6$

So $\mathbf{0.6}$, $\mathbf{\dfrac{3}{5}}$ and $\mathbf{60\%}$ should be circled.
(2 marks for correct three amounts circled. Otherwise 1 mark for converting four or more values to decimals or percentages.)

4) E.g. Percy: $\dfrac{8}{25} = \dfrac{32}{100} = 32\%$
India: 35%
(1 mark for converting values to fractions or percentages.)
So **India** has washed more cars.
(1 mark)

Pages 40-41 — Mixed Practice

1) There are 5 fifths in a whole, so there are $5 + 4 = 9$ fifths in total. So $1\dfrac{4}{5} = \mathbf{\dfrac{9}{5}}$.

There are 10 tenths in a whole, so there are $10 + 7 = 17$ tenths in total. So $1\dfrac{7}{10} = \mathbf{\dfrac{17}{10}}$.
(1 mark for both correct)

2) $0.36 \times 100 = \mathbf{36\%}$
$78 \div 100 = \mathbf{0.78}$
(1 mark for both)

3) $\dfrac{3}{2} = 1.5$. Since $1.5 > 1.25$, **Jasmine** has more butter.
(1 mark)

4) $\dfrac{2}{3} \div 3 = \dfrac{2}{3 \times 3} = \mathbf{\dfrac{2}{9}}$ of a bag.
(1 mark)

5) Louisa has $4 \times 8 = 32$ slices in total. She gives away $5 + 4 + 2 = 11$ slices, so she is left with $32 - 11 = 21$ slices. This is $\dfrac{21}{8}$ cheesecakes.

$21 \div 8 = 2$ remainder 5, so she has $\mathbf{2\dfrac{5}{8}}$ cheesecakes left.
(2 marks for the correct answer. Otherwise 1 mark for finding the correct improper fraction.)

6) Make equivalent fractions with the same denominator:
Pia has used $\dfrac{7}{10} = \dfrac{21}{30}$ of her ribbon.
Lily has used $\dfrac{2}{3} = \dfrac{20}{30}$ of her ribbon.
Eric has used $\dfrac{12}{15} = \dfrac{24}{30}$ of his ribbon.
(1 mark for all equivalent fractions.)
So **Eric** has used the most ribbon. *(1 mark)*

7) Make equivalent fractions with the same denominator:
The grass covers $\dfrac{1}{2} = \dfrac{3}{6}$ of the park.

The playground covers $\dfrac{1}{3} = \dfrac{2}{6}$ of the park. Subtract these from $1 = \dfrac{6}{6}$: $\dfrac{6}{6} - \dfrac{3}{6} - \dfrac{2}{6} = \dfrac{1}{6}$
So trees cover $\mathbf{\dfrac{1}{6}}$ of the park.
(1 mark)

8) Multiply the number he makes each day by the number of days:
$2 \times 20 = 40$
$\dfrac{3}{4} \times 20 = \dfrac{3 \times 20}{4} = \dfrac{60}{4} = 15$
So $2\dfrac{3}{4} \times 20 = 40 + 15 = 55$.

So Huw makes **55** clocks.
(1 mark)

Answers

Section Four — Ratio, Proportion and Algebra

Pages 42-43 — Ratio, Proportion and Unequal Sharing

1) The ratio of circles to stars is **5 : 3**. *(1 mark)*
   For every shaded shape there are **3** unshaded shapes. *(1 mark)*

2) $45 \div 5 = $ **9** bookmarks *(1 mark)*

3) $15 = 5$ lots of 3 green pens
   So there are 5×4
   $= $ **20** blue pens *(1 mark)*

4) $48 = 6$ lots of 8 plums, so he will need $6 \times 5 = $ **30** apples *(1 mark)*

   $25 = 5$ lots of 5 apples, so she will need $5 \times 8 = $ **40** plums *(1 mark)*

5) $12 = 6$ lots of 2 witches, so there are $6 \times 3 = $ **18** mummies *(1 mark)*

6) 3 sandwiches cost
   $3 \times £1.50 = £4.50$.
   So 5 bags of crisps cost £4.50.
   So 1 bag of crisps costs
   $£4.50 \div 5 = £0.90 = $ **90p**
   (2 marks for the correct answer. Otherwise 1 mark for setting the cost of 3 sandwiches equal to the cost of 5 bags of crisps.)

7) There are $50 + 30 = 80$ shares.
   1 share $= 400 \div 80 = 5$
   Fiona uses $50 \times 5 = $ **250** blueberries *(1 mark)*

8) There are $4 + 3 = 7$ shares.
   1 share $= 42 \div 7 = 6$
   Kayla: $4 \times 6 = $ **24** marbles
   Leanne: $3 \times 6 = $ **18** marbles
   (1 mark)

Pages 44-45 — Scaling

1) $12 \times 8p = $ **96p** *(1 mark)*

2) 1 cm represents 5 km, so 6 cm represents $6 \times 5 = $ **30 km** *(1 mark)*

3) $800 \div 4 = $ **200 g** *(1 mark)*
   $200 \times 9 = $ **1800 g** *(1 mark)*

4) $30 = 5$ lots of 6 tennis balls, so 30 tennis balls will cost $5 \times £9 = $ **£45** *(1 mark)*

5) The kitchen is 10 times wider and longer than the model.
   Length $= 32 \times 10 = 320$ cm
   $= $ **3.2 m**
   Width $= 54 \times 10 = 540$ cm
   $= $ **5.4 m**
   (1 mark for both correct)

6) Shape A is 1 square high.
   Shape B is 3 squares high.
   So the scale factor is $3 \div 1 = $ **3**
   (1 mark)

7) 1 roll costs $£56 \div 7 = £8$, so 5 rolls would cost $£8 \times 5 = $ **£40**
   (1 mark)

8) 12 cm on the model represents 6 m in real life. So 2 cm on the model represents 1 m in real life. So 8 m in real life is $8 \times 2 = $ **16 cm** on the model. *(1 mark)*

Pages 46-47 — Percentage Problems

1) 10% of $160 = 160 \div 10 = $ **16**

   10% of $2300 = 2300 \div 10 = 230$
   20% of $2300 = 230 \times 2 = $ **460**

   10% of $450 = 450 \div 10 = 45$
   30% of $450 = 45 \times 3 = $ **135**
   (2 marks for all three correct. Otherwise 1 mark for two correct.)

2) 10% of $£360 = £360 \div 10 = £36$
   5% of $£360 = £36 \div 2 = $ **£18**
   (1 mark)

   10% of 8200 km
   $= 8200$ km $\div 10 = 820$ km
   5% of 8200 km
   $= 820$ km $\div 2 = 410$ km
   15% of 8200 km
   $= 820 + 410 = $ **1230 km**
   (1 mark)

3) 50% of $240 = 240 \div 2 = 120$
   10% of $240 = 240 \div 10 = 24$
   5% of $240 = 24 \div 2 = 12$
   65% of $240 = 120 + 24 + 12$
   $= $ **156** *(1 mark)*

4) He has used 45%, so there is $100\% - 45\% = 55\%$ left
   50% of $180 = 180 \div 2 = 90$
   10% of $180 = 180 \div 10 = 18$
   5% of $180 = 18 \div 2 = 9$
   55% of $180 = 90 + 9 = $ **99**
   (1 mark)

5) 10% of $600 = 600 \div 10 = 60$
   20% of $600 = 60 \times 2 = 120$
   1% of $600 = 600 \div 100 = 6$
   So 19% $= 20\% - 1\% = 120 - 6$
   $= $ **114** *(1 mark)*

6) $\frac{162}{200} = \frac{81}{100} = $ **81%** *(1 mark)*

7) $23 + 27 = 50$
   $\frac{27}{50} = \frac{54}{100} = $ **54%** *(1 mark)*

8) Library:
   $13 + 12 = 25$ people in total
   $\frac{13}{25} = \frac{52}{100} = 52\%$ are children

   Leisure centre:
   $11 + 9 = 20$ people in total
   $\frac{11}{20} = \frac{55}{100} = 55\%$ are children
   (1 mark for either percentage correct)
   $55\% > 52\%$. There is a higher percentage of children at the **leisure centre**. *(1 mark)*

Pages 48-49 — Formulas and Combinations

1) Perimeter $= 6 \times 20 = $ **120 cm**
   (1 mark)

2) **Chocolate and vanilla**
   Strawberry and caramel
   (1 mark for both combinations)

3) Amount paid $= 7 \times 9 + 10$
   $= 63 + 10 = $ **£73** *(1 mark)*

   Amount paid $= 7 \times 20 + 10$
   $= 140 + 10 = £150$
   $£150 - £73 = $ **£77** *(1 mark)*
   Alternatively, you could work out the difference in hours first.

4) Total weight $=$
   150 × Number of apples +
   200 × Number of oranges
   (1 mark)

   Total weight $= 150 \times 4 + 200 \times 6$
   $= 600 + 1200 = $ **1800 g** *(1 mark)*

Answers

5) Cost = £2.40 + 50p × 8
= £2.40 + £4 = **£6.40** *(1 mark)*

n = number of beads on
Jemma's necklace.
£7.90 = £2.40 + 50p × n
£5.50 = £0.50 × n
n = £5.50 ÷ £0.50 = 11
So there are **11** beads on
Jemma's necklace. *(2 marks for the correct answer. Otherwise 1 mark for setting £7.90 equal to the cost formula and attempting to solve.)*

Pages 50-51 — Finding Missing Numbers

1) 54 ÷ 6 = **9** *(1 mark)*

2) ◯ ÷ 6 = 11
So ◯ = 11 × 6 = **66** *(1 mark)*

15 × ⬡ = 60
So ⬡ = 60 ÷ 15 = **4** *(1 mark)*

3) y = 16 + 22 = **38** *(1 mark)*

32 = x + 22
x = 32 − 22 = **10** *(1 mark)*

4) d = Daniel's number
57 − 7 = 50
d ÷ 2 = 50, so d = 50 × 2
= **100** *(1 mark)*

5) E.g. 4 × 9 = 36,
so A = **4** and B = **9** *(1 mark)*

6) ☆ + ☆ + ☆ = 21,
so ☆ = 21 ÷ 3 = **7** *(1 mark)*

☆ + ◇ + ◇ = 37,
so 7 + ◇ + ◇ = 37
◇ + ◇ = 30
◇ = 30 ÷ 2 = **15** *(1 mark)*

7)

	♡	△
Pair 1	**1**	**7**
Pair 2	**2**	**5**
Pair 3	**3**	**3**
Pair 4	**4**	**1**

(2 marks for four correct pairs. Otherwise 1 mark for two or three correct pairs.)

Page 52 — Number Sequences

1) The rule is add 1000.
26 089, 27 089, 28 089,
29 089, **30 089** *(1 mark)*

2) 12 − 4 = 8, 36 − 28 = 8
The rule is add 8.
4, 12, **20**, 28, 36, **44** *(1 mark)*

3) **55**, 40, 25, **10**, **−5**
(2 marks for all three terms correct. Otherwise 1 mark for two terms correct.)

4) 48 − 60 = −12.
The rule is subtract 12.
72, 60, 48, **36**, **24**
(2 marks for all three terms correct. Otherwise 1 mark for two terms correct.)

5) 4 − 2 = 2, 2 × 3 = 6
6 − 2 = 4, 4 × 3 = 12
So the sequence is 4, **6**, **12**, 30.
(1 mark for each correct term)

Pages 53-54 — Mixed Practice

1) There are 1 + 3 = 4 shares,
so Wyatt gets $\frac{1}{4}$ of the melon.
(1 mark)

2) 10 km is represented by 1 cm.
So 15 km is represented by
15 ÷ 10 = 1.5 cm.
So Michelle's school and her house are **1.5 cm** apart on the map. *(1 mark)*

3) Olga has 4 + 1 = 5 pencils.
$\frac{4}{5}$ = 80% of her pencils are blue.
David has 3 + 1 = 4 pencils.
$\frac{3}{4}$ = 75% of his pencils are blue.
So **Olga** has a higher percentage of blue pencils. *(1 mark)*

4) Formula for the cost =
£12 × Number of tickets + £3.50
(1 mark)

For 3 tickets:
Cost = £12 × 3 + £3.50
= £36 + £3.50
= **£39.50** *(1 mark)*

5) 10% of 150 = 150 ÷ 10 = 15
1% of 150 = 150 ÷ 100 = 1.5
2% of 150 = 1.5 × 2 = 3
So 12% of 150 = 10% + 2%
= 15 + 3 = **18 coins** *(1 mark)*

6) 1 share = 5 scarves, so they have knitted 25 ÷ 5 = 5 shares.
So Leo has knitted 3 × 5
= **15 scarves**. *(1 mark)*

7) The rule is subtract 4.
11, **7**, 3, −1, **−5** *(1 mark)*

8) ☆ + ☆ + ☆ = 15
so ☆ = 15 ÷ 3 = **5** *(1 mark)*

♡ + ♡ − ☆ = 11
♡ + ♡ − 5 = 11
♡ + ♡ = 16
♡ = 16 ÷ 2 = **8** *(1 mark)*

Answers

Section Five — Measure

Pages 55-56 —
Units and Conversions

1) 3.5 m = 3.5 × 100 = 350 cm
35 cm = 35 ÷ 100 = 0.35 m
3500 m = 3500 ÷ 1000 = 3.5 km

3.5 cm	3.5 km
3.5 m	35 mm
35 cm	0.35 m
3500 m	350 cm
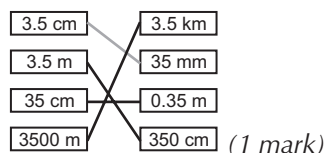
(1 mark)

2) There are 5 small intervals in 1000 ml, so each small interval is 1000 ÷ 5 = 200 ml.
The water level is at 1000 + (2 × 200) = **1400 ml**.
(1 mark)

1 litre = 1000 ml
2500 ÷ 1000 = **2.5 litres**
(1 mark)

3) 1 cm = 10 mm
36 × 10 = **360 mm** *(1 mark)*

360 ÷ 18 = **20** *(1 mark)*

4) Convert all the measurements into grams. (1 kg = 1000 g)
0.5 kg = 0.5 × 1000 = 500 g
5 kg = 5 × 1000 = 5000 g
So the order is:
490 g, 500 g, 600 g, 5000 g
Converting back the order is:
490 g, 0.5 kg, 600 g, 5 kg
(1 mark)

5) 8 km ≈ 5 miles
20 miles is 4 lots of 5 miles, which is roughly equal to 4 lots of 8 km. 4 × 8 = **32 km**
(1 mark)

6) 100 g ≈ 4 ounces
8 ounces is 2 lots of 4 ounces, which is roughly equal to 2 lots of 100 g.
2 × 100 = 200 g
200 – 150 = **50 g** *(1 mark)*

7) 1 litre = 1000 ml
1000 ÷ 25 = 40, so **40** cups of tea should be circled.
(1 mark)

12 × 25 = 300 ml
1000 – 300 = **700 ml** *(1 mark)*

Pages 57-59 —
Time and Money

1) **24**, **60** and **366** should be circled *(1 mark)*

2) £1 = 100p
2789p = 2789 ÷ 100
= **£27.89** *(1 mark)*

£102.53 = 102.53 × 100
= **10 253p** *(1 mark)*

3) 1 hour = 60 minutes
Journey 1: 4 hours = 4 × 60
= 240 minutes
240 + 10 = **250 minutes**
(1 mark)

Journey 2: 5 hours = 5 × 60
= 300 minutes
300 + 45 = **345 minutes**
(1 mark)

4) 8 × 40p = 320p
£1 = 100p
320p = 320 ÷ 100 = **£3.20**
(1 mark)

5) 1 week = 7 days
1 week and 3 days
= 7 + 3 = **10 days**
1 day = 24 hours
10 days = 10 × 24 = **240 hours**
(1 mark for both correct.)

6) £6.50 + £10.40 = £16.90
£20 – £16.90 = **£3.10** *(1 mark)*

7) 50 + 23 = 73 minutes
1 hour = 60 minutes
3 hours = 3 × 60 = 180 minutes
180 – 73 = 107 minutes.
107 ÷ 60 = 1 remainder 47,
so 107 minutes
= **1 hour 47 minutes**
(2 marks for correct answer. Otherwise 1 mark for a correct conversion between hours and minutes, or minutes and hours.)

8) Half the money in his piggy bank is £5.40 ÷ 2 = £2.70
£2.70 – 90p = **£1.80** *(1 mark)*

9) January = 31 days
June = 30 days
July = 31 days
31 + 30 + 31 = **92 days**
*(2 marks for the correct answer. Otherwise 1 mark for two months with the correct number of days.)*

10) 2:30 + 30 seconds = 3:00
3:00 + 60 seconds = 4:00
4:00 + 10 seconds = 4:10
So she was 30 + 60 + 10
= **100 seconds** slower *(1 mark)*

James and Jasper finished
50 – 4 = 46 seconds apart.
46 ÷ 2 = 23 seconds
So Freya finished in
3:04 + 23 seconds
= **3:27** *(1 mark)*

11) Two avocados cost:
£1.15 × 2 = £2.30
£1 = 100 p
2.30 × 100 = 230p
So one loaf of bread costs
230 ÷ 5 = **46p**
(2 marks for correct answer. Otherwise 1 mark for finding the cost of two avocados.)

Page 60 — Area

1) Any shape enclosing 9 grid squares. *(1 mark)*
Two examples are:
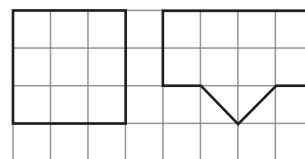
2) **D** should be circled. *(1 mark)*

3) Area of A = length × width
= 8 × 2 = **16 cm²** *(1 mark)*

Area of B = length × width
= 20 × 16 = **320 cm²** *(1 mark)*

4) Area = length × width
so length = area ÷ width
X = **36 ÷ 9** should be circled. *(1 mark)*

Pages 61-62 —
Perimeters and Areas

1) 15 + 6 + 15 + 6 = **42 m**
(1 mark)

8 + 8 + 17 = **33 cm** *(1 mark)*

2) 10 × 7 = **70 cm** *(1 mark)*

Answers

3) Any rectangles with side lengths of 1 and 8, 2 and 7, 3 and 6 or 4 and 5 cm are acceptable. E.g.
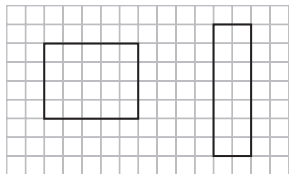
(1 mark for each correct rectangle)

4) Missing side = 12 − 3 = 9 m
9 + 6 + 12 + 2 + 3 + 4
= **36 m** *(1 mark)*

5) Find the missing sides using length = area ÷ width
Rectangle A: 24 ÷ 4 = 6 cm
6 + 4 + 6 + 4 = **20 cm** *(1 mark)*
Rectangle B: 24 ÷ 3 = 8 cm
8 + 3 + 8 + 3 = **22 cm** *(1 mark)*

6) Find the missing side length:
2 + 4 = 6 m
Find the perimeter:
2 + 1 + 4 + 3 + 6 + 4 = 20 m
Number of rolls = perimeter ÷ 5
So Li needs 20 ÷ 5 = **4 rolls**
(2 marks for correct answer. Otherwise 1 mark for finding the perimeter.)
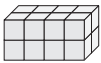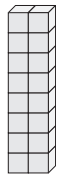
Page 63 — Areas of Triangles and Parallelograms

1) Area = ½ × base × height
= ½ × 4 × 5
= **10 cm²** *(1 mark)*

Area = ½ × base × height
= ½ × 10 × 6
= **30 m²** *(1 mark)*

2) Area of left-hand triangle
= ½ × base × height
= ½ × 6 × 3 = 9 m²
Area of right-hand triangle
= ½ × base × height
= ½ × 6 × 10 = 30 m²
Total = 9 + 30 = **39 m²**
(2 marks for correct answer. Otherwise 1 mark for finding the area of either triangle.)

3) Area = base × height
= 10 × 5 = **50 m²** *(1 mark)*

Area = base × height
= 7 × 4 = **28 cm²** *(1 mark)*

4) Area = base × height
Area A = 3 × 3 = 9 square units
Area B = 2 × 4 = 8 square units
Area C = 4 × 3 = 12 square units
Area D = 6 × 2 = 12 square units
Area E = 5 × 3 = 15 square units
So the parallelograms with the same area are **C** and **D**.
(2 marks for the correct answer. Otherwise 1 mark for finding at least two areas correctly.)

Pages 64-65 — Volume

1) 8 cubes = **8 cm³** *(1 mark)*

3 × 2 × 3 = **18 cm³** *(1 mark)*

2) 4 × 4 × 2 = 32 cm³
3 × 3 × 2 = 18 cm³
4 × 2 × 2 = 16 cm³
8 × 2 × 1 = 16 cm³
So both [image] and [image] should be circled. *(1 mark)*

3) V = l × w × h
= 4 × 5 × 5
= 20 × 5 = **100 m³** *(1 mark)*

V = l × w × h
= 9 × 8 × 3
= 72 × 3 = **216 cm³** *(1 mark)*

4) V = l × w × h
Volume A = 2 × 3 × 6 = 36 cm³
Volume B = 2 × 2 × 8 = 32 cm³
Volume C = 1 × 2 × 18 = 36 cm³
Volume D = 3 × 3 × 3 = 27 cm³
Volume E = 9 × 2 × 2 = 36 cm³
A, **C** and **E** should be circled.
(2 marks for all correct. Otherwise 1 mark for two correctly circled.)

5) V = l × w × h
Volume A = 7 × 4 × 2 = 56 cm³
Volume B = 6 × 2 × 9 = 108 cm³
Difference = 108 − 56 = **52 cm³**
(2 marks for the correct answer. Otherwise 1 mark for working out one volume correctly.)

6) V = l × w × h,
so height = 120 ÷ (4 × 3)
= 120 ÷ 12 = **10 cm** *(1 mark)*

Pages 66-67 — Mixed Practice

1) A is made from 7 whole squares and 4 half squares so has an area of **9 cm²** *(1 mark)*

B is made from 8 whole squares and 3 half squares so has an area of **9½ cm²** *(1 mark)*

2) 1 year = 12 months
48 ÷ 12 = **4 years** *(1 mark)*

3) V = l × w × h
= 8 × 3 × 10
= 24 × 10 = **240 cm³** *(1 mark)*

4) 1 m ≈ 3 feet
9 × 3 = **27 ft** *(1 mark)*

5) £10 − 40p = £9.60
£9.60 ÷ 2 = **£4.80** *(1 mark)*

1 kg = 1000 g
1.95 × 1000 = 1950 g
1950 − 900 = **1050 g** *(1 mark)*

6) Missing horizontal side
= 10 − 8 = 2 cm
Missing vertical side
= 9 − 5 = 4 cm
10 + 9 + 2 + 4 + 8 + 5
= **38 cm** *(1 mark)*

7) Length of entire rectangular section = 5 + 6 + 5 = 16 cm
Area of rectangle
= length × width
= 16 × 2 = 32 cm²
Area of one triangle
= ½ × base × height
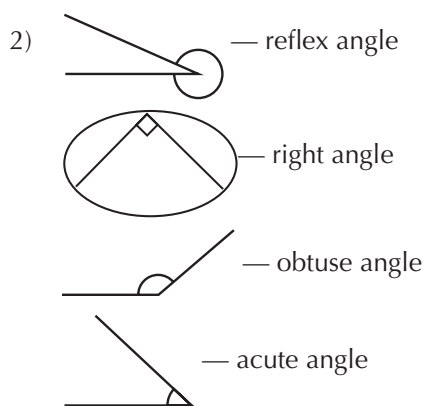= ½ × 6 × 4 = 12 cm² *(1 mark)*
Total area:
32 + 12 + 12 = **56 cm²** *(1 mark)*

Answers

Section Six — Geometry
Pages 68-69 — Angle Rules

1) **30°** *(1 mark — allow any answer between 28° and 32°.)*

2) — reflex angle

— right angle

— obtuse angle

— acute angle

(1 mark for joining angles to the correct names, 1 mark for circling the right angle)

3) A = 180° – 40° = **140°** *(1 mark)*
B = 90° – 75° = **15°** *(1 mark)*

4) X = 360° – 60° = **300°** *(1 mark)*

5) M = 180° – 30° – 40° = **110°** *(1 mark)*
N = 180° – 50° – 40° – 30° = **60°** *(1 mark)*

6) P = 360° – 220° – 60° = **80°** *(1 mark)*
Q = 360° – 120° – 90° – 30° = **120°** *(1 mark)*
R = 180° – 45° = **135°** *(1 mark)*

7) K is vertically opposite 70°, so K = **70°**.
Angles on a straight line add up to 180°, so J = 180° – 70° = **110°**
L is vertically opposite J, so L = **110°**.
(2 marks for all three correct. Otherwise 1 mark for one correct.)

Page 70 — Drawing 2D Shapes

1) 7 cm

3 cm

(Not full size)
(1 mark)

2) 5 cm

55° (Not full size)
4 cm
(1 mark)

3) E.g.

(Not full size)
(1 mark)

Pages 71-72 — Properties of Shapes

1) An octagon has **8** sides.
All the angles in a **regular** hexagon are the same.
A regular pentagon has 5 **equal** length sides. *(1 mark)*

2) **Scalene triangle**
Isosceles triangle *(1 mark)*

3) E.g.

(1 mark)

4) **It has 4 sides that are the same length** and **Its opposite angles are equal** should be ticked.
(1 mark)

5) Side A is the same length as the 10 cm side, so A = **10 cm**
Side B is the same length as the 4 cm side, so B = **4 cm**
Angle C is the same as the labelled angle, so C = **112°**
(2 marks for all three correct. Otherwise 1 mark for two correct.)

6) **Radius** and **Circumference**
(1 mark for both correct)

7) 14 ÷ 2 = **7 cm** *(1 mark)*

Page 73 — Angles in Shapes

1) X = 180° – 50° – 70° = **60°** *(1 mark)*

It's an isosceles triangle, so the two bottom angles are equal.
2Y = 180° – 40° = 140°
Y = 140° ÷ 2 = **70°** *(1 mark)*

2) 50° + 130° + 70° + 100° = 350°. *(1 mark)*
Angles in a quadrilateral should add up to 360°, but his total is 350°.
(1 mark for explanation)

3) A is vertically opposite the 140° angle, so they are equal.
So A = **140°** *(1 mark)*

B = 360° – 50° – 140° – 100° = **70°** *(1 mark)*

Pages 74-75 — 3D Shapes

1) **Cuboid**, **Cone** *(1 mark)*

2) Triangular prism — **net B**
Square-based pyramid — **net C**
Triangle-based pyramid — **net A**
(1 mark)
A triangle-based pyramid is also known as a tetrahedron.

3) E.g.

(1 mark)

4)

(1 mark)

5)
Faces	Edges	Vertices
6	**12**	**8**

(1 mark for all three correct)
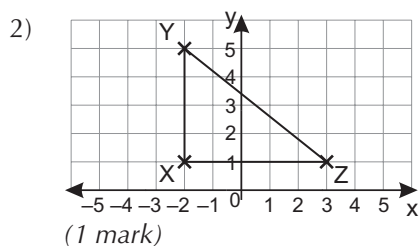
6) A triangular prism has **5** faces.
(1 mark)
2 of its faces are triangles and 3 of its faces are **rectangles**.
(1 mark for both correct)
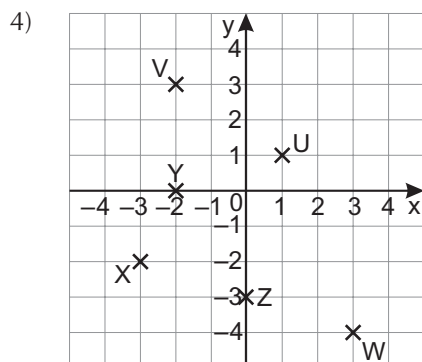
7) **Cylinder** *(1 mark)*

Answers

Pages 76-77 — Coordinates

1) Point A **(2, 2)**
   Point B **(3, 7)**
   Point C **(5, 5)**
   Point D **(6, 0)**
   (1 mark)

2)
   (1 mark)

   **Right-angled triangle** *(1 mark)*

3) Point J **(7, 5)**   Point K **(–4, –4)**
   Point L **(–7, 4)**   Point M **(3, –2)**
   (2 marks for all coordinates correct. Otherwise 1 mark for at least 2 pairs of coordinates correct.)

4)

   (2 marks for all six points plotted correctly. Otherwise 1 mark for three or more points plotted correctly.)

5) The x-coordinate is the same as the point below it and the y-coordinate is the same as the point to the left.
   So A = **(8, 7)** *(1 mark)*

6) The x-coordinate is the same as the point above it and the y-coordinate is the same as the point to the right.
   So B = **(–6, –2)** *(1 mark)*

Pages 78-79 — Reflection and Translation

1)
   (1 mark)

2)
   (1 mark)

3)
   (1 mark)

4)
   (1 mark)
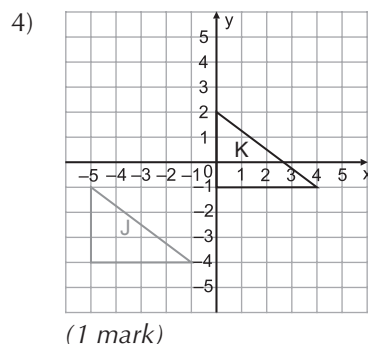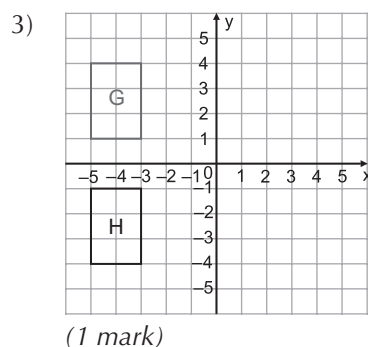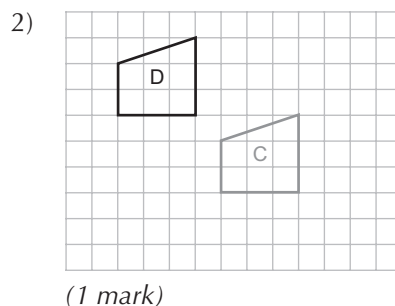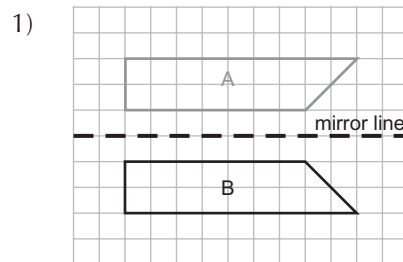
5) Shape P has been translated **6** squares to the right and **3** squares down to give shape Q.
   (1 mark for both correct)

6)
   (1 mark)
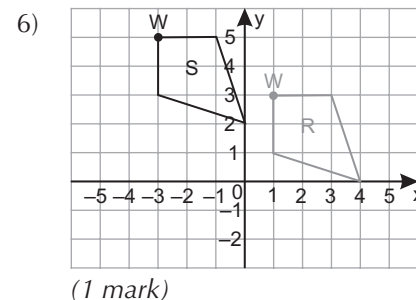
   Point W = **(–3, 5)** *(1 mark)*
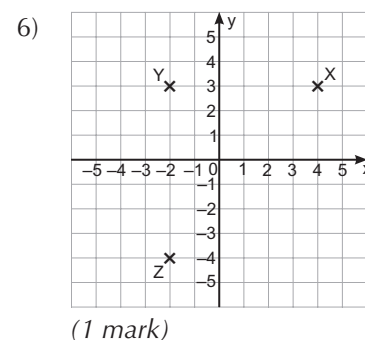
Pages 80-81 — Mixed Practice

1) **4** *(1 mark)*

2) **5 cm** *(1 mark — allow any answer between 4.8 cm and 5.2 cm)*
   50° *(1 mark — allow any answer between 48° and 52°.)*

3) A = 360° – 115° – 150°
   = **95°** *(1 mark)*

   B = 180° – 60° – 75° = **45°**
   (1 mark)

4) **Rectangle** and **Parallelogram**
   (1 mark)

5) P = 360° – 50° – 80° – 90°
   = **140°** *(1 mark)*

6)
   (1 mark)

   (4, –4) *(1 mark)*

7) 3 × 2 = **6 cm** *(1 mark)*

8)
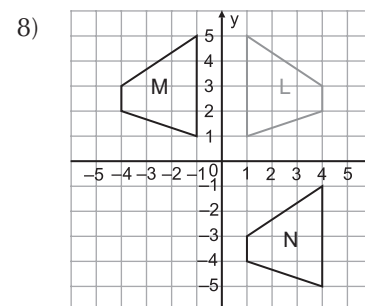
   (1 mark for shape M correct, 1 mark for shape N correct)

Answers

Section Seven — Statistics

Pages 82-83 — Tables and Pictograms

1) Look in the 'Melted' column and add the values:
14 + 28 + 11 = 53 tickets
Look in the 'Wilbur Flies Again' column and add the values:
25 + 22 + 20 = 67 tickets
So **Wilbur Flies Again** should be circled. *(1 mark)*

Look in the 'Adult' row and add the values:
14 + 25 = 39 tickets
Look in the 'Senior Citizen' row and add the values:
11 + 20 = 31 tickets
Subtract to find the difference:
39 – 31 = **8** tickets *(1 mark)*

2) There are 2½ pictures next to 'Friday'. Each picture means 2 planes, so each ½ picture means 2 ÷ 2 = 1 plane.
So there were (2 × 2) + 1 = 4 + 1 = **5** planes. *(1 mark)*

There are 2 more pictures next to 'Monday' than next to 'Tuesday'.
2 pictures means 2 × 2 = **4** planes. *(1 mark)*

3) The second train gets to The Zoo at 11:15, and the third train gets there at 11:45.
So the latest time he can leave Redpool is **10:35**. *(1 mark)*

The 09:47 train from Louville gets to Wedton at 12:02.
So it will take her 2 hours and 15 minutes = **135 minutes**. *(1 mark)*

4) 1.15 pm = 13:15
She must be at the Misty Island ferry stop 35 minutes before 13:15, which is 12:40.
The second ferry gets to Misty Island at 11:59, the third ferry doesn't go to Misty Island, and the fourth ferry gets to Misty Island at 12:59, which is too late. So the latest time she can get the ferry from Swan Bridge is **10:52**. *(1 mark)*

Pages 84-85 — Bar Charts and Line Graphs

1)

Child	Votes
Joel	19
Grace	**15**
Kevin	**5**
Aisha	16

(1 mark)

The second tallest bar — **Aisha**. *(1 mark)*

19 + 15 + 5 + 16 = **55** *(1 mark)*

2) February = 20 – 10 = 10 flowers
May = 70 – 45 = 25 flowers
25 – 10 = **15** flowers
(2 marks for the correct answer. Otherwise 1 mark for one correct monthly value.)

3) At 4 am it was 2 °C and at 12 pm it was 10 °C. So the difference in temperature was 10 – 2 = **8 °C**. *(1 mark)*

10 am is halfway between 8 am and 12 pm. Go up from 10 am until you reach the line.
Then go across to the axis.
The temperature was approximately **7 °C**. *(1 mark)*

4) Wednesday week 1 = 10 eggs
Wednesday week 2 = 20 eggs
20 – 10 = **10** eggs *(1 mark)*

Monday week 2 = 14 eggs
Wednesday week 2 = 20 eggs
Friday week 2 = 14 eggs
14 + 20 + 14 = **48** eggs *(1 mark)*

Page 86 — Pie Charts

1) **True**. The 55+ sector is half of the pie chart, so half of the people must be under 55 too. *(1 mark)*

False. The angle for 19-30 is 60°, which is only twice as big as the 30° angle for 0-18. *(1 mark)*

True. The 31-54 group is 90° = 1 quarter of the pie chart, which is 60 ÷ 4 = 15 people. *(1 mark)*

2) The 2 goals sector is $\frac{1}{4}$ of the circle = **25%** *(1 mark)*

The 0 goals sector is 60°, which is $\frac{1}{6}$ of the circle. $\frac{1}{6}$ of 24 = 24 ÷ 6 = **4** matches. *(1 mark)*

Page 87 — The Mean

1) 4 + 6 + 8 + 2 = 20
20 ÷ 4 = **5** *(1 mark)*

2 + 3 + 5 + 8 + 12 = 30
30 ÷ 5 = **6** *(1 mark)*

2) 10 + 15 + 7 + 15 + 13 = 60 mins
60 ÷ 5 = **12 minutes** *(1 mark)*

3) 75 + 85 + 80 + 60 = 300 kg
300 ÷ 4 = **75 kg** *(1 mark)*

Pages 88-89 — Mixed Practice

1) The last train into Fort Bill before 13:00 arrives at 12:40.
This train leaves Barwick at **10:24**. *(1 mark)*

The 13:17 train arrives at 14:20
13:17 to 13:20 is 3 minutes
13:20 to 14:20 is 60 minutes
3 + 60 = 63 minutes
The 08:42 train arrives at 10:42 so it takes 2 hours, which is 2 × 60 = 120 minutes
120 – 63 = **57 minutes**
(2 marks for the correct answer. Otherwise 1 mark for finding how long one of the trains takes.)

2) 120° + 60° = 180°
180° is half of 360°, so 48 ÷ 2 = **24** children *(1 mark)*

News sector has an angle of 30°
$\frac{30}{360} = \frac{1}{12}$ *(1 mark)*

3) There are 5 circles by 'Steak'
30 ÷ 5 = 6
Key: ◯ = **6** pies *(1 mark)*

There are 15 shapes in total.
15 × 6 = **90** pies *(1 mark)*

Answers

'**Cheese and Onion**' should be circled. In the pictogram there are 2.5 circles so the shop sold 2.5 × 6 = 15 pies, but only 13 are shown on the bar chart. *(1 mark)*

Total cost:
(4 × 4) + (2 × 7) = 16 + 14 = £30
So mean: £30 ÷ 6 = **£5** *(1 mark)*

Pages 90-95 — Practice Test

1) **427** *(1 mark)*

2) **2410** *(1 mark)*
   4.7 *(1 mark)*
   100 *(1 mark)*

3)
$$26\overline{)3\ ^3 1\ ^5 9\ ^7 8}^{\ 1\ 2\ 3}$$

   (2 marks for the correct answer. Otherwise 1 mark for working with no more than one error.)

4)
```
      4 6 5 8
   +  3 1 2 4
   ─────────
      7 7 8 2
            ₁
```
   (1 mark)

5) $4^2 = 4 \times 4 = 16$
   16 + 10 = **26** *(1 mark)*

6) $\frac{3}{5} + 1\frac{1}{3} = \frac{3}{5} + \frac{4}{3} = \frac{9}{15} + \frac{20}{15} =$
   $\frac{29}{15} = \mathbf{1\frac{14}{15}}$
   (2 marks for the correct answer. Otherwise 1 mark for correct working.)

7)
```
      1 . 0 0 5
   +  3 . 2 6 0
   ───────────
      4 . 2 6 5
```
   (1 mark)

8)
```
         2 1 5 6
   ×         4 3
   ─────────────
       6 4 ₁6 ₁8
     8 6 ₂2 ₂4 0
   ─────────────
     9 ₁2 7 ₁0 8
```
   (2 marks for the correct answer. Otherwise 1 mark for working using long multiplication with no more than one error.)
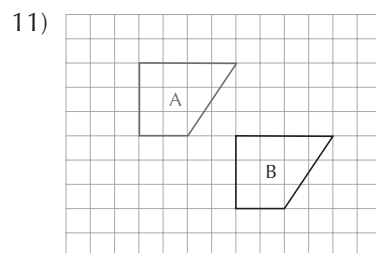
9) Make equivalent fractions with the same denominator:
   $\frac{2}{3} = \frac{16}{24}$, $\frac{1}{2} = \frac{12}{24}$, $\frac{5}{8} = \frac{15}{24}$ and $\frac{13}{24}$. So the order is:
   $\mathbf{\frac{1}{2}}$, $\mathbf{\frac{13}{24}}$, $\mathbf{\frac{5}{8}}$, $\mathbf{\frac{2}{3}}$
   (2 marks for the correct order. Otherwise 1 mark for finding equivalent fractions.)

10) **30 000** *(1 mark)*
    7 *(1 mark)*

11)

   (1 mark)

12) −7 + 11 = **4** *(1 mark)*

13) **23** and **19** should be circled *(1 mark)*

14)
```
      2 ²8 ¹4 ⁴5 ¹0
   −    1 2 6 2 5
   ───────────────
   £  1 0 8 2 5
```
   (1 mark)

15) A: **(2, 4)**
    B: **(2, −4)**
    C: **(−2, 2)**
    (1 mark)

16) **12:10** *(1 mark)*

    The 10:50 train arrives at Vinter at 13:15, so it takes 2 hours 25 minutes = **145 minutes** *(1 mark)*

17) 6 × 5 = 30, so multiply ingredients by 5:
    200 × 5 = 1000 g
    1000 g = **1 kg** of flour
    (1 mark)
    6 × 4 = 24, so multiply ingredients by 4:
    150 × 4 = **600 g** of butter
    (1 mark)

18) There are 1 + 3 = 4 shares.
    1 share = 24 ÷ 4 = £6
    Petra: 3 × £6 = **£18**
    (2 marks for the correct answer. Otherwise 1 mark for working out the value of 1 share.)

19) **17**
    3
    14 *(1 mark)*

20) Missing sides: 8 − 5 = 3 m
    11 − 6 = 5 m
    Perimeter:
    5 + 11 + 8 + 6 + 3 + 5
    = **38 m** *(1 mark)*

21) **9 °C** *(1 mark)*
    15 − 12 = **3 °C** *(1 mark)*

22) $\frac{1}{2} \times 6 \times 7 = \mathbf{21\ cm^2}$
    (1 mark)

23) The difference between the values is 53 − 47 = 6 *(1 mark)*
    35 + 6 = 41
    53 + 6 = 59
    59 + 6 = 65
    So the sequence should be
    35, **41**, 47, 53, **59**, 65 *(1 mark)*

MLFW23