



Primary
Practice

parallel

741

multiple

08:45

quotient

Maths

Practice

3kg

Year 3

$220 - 145 = 75$

Answers

perimeter



Includes explanations

Schofield & Sims

Notes for parents and carers

These answers are provided to accompany the **Maths Practice Year 3 Question Book**, which is part of the **Schofield & Sims Primary Practice Maths** series. Answers for all books in the series can be downloaded from the **Schofield & Sims** website.

The structure

This PDF contains answers for every question in the book. Navigate the PDF document by clicking on the hyperlink for the desired topic in the Contents page. Questions are presented in the order they appear in the book.

In most units, explanations are included for each set of questions to support understanding of the objective being covered. These explanations may suggest methods for working through each question. Explanations are also supplied for questions that children may find particularly challenging. Question number references have been added to answers when explanations from earlier questions may aid understanding.

In the 'Final practice' section, explanations have been provided for every question. Marking guidance is provided alongside the explanation to demonstrate how to allocate partial and full credit for work as applicable.

Using the answers

Encourage children to work through each question carefully. They should begin by reading the question thoroughly and identifying key terminology before forming their answer.

Although units have been included with these answers to aid understanding, note that children do not need to write the units in their answers for the answers to be marked correct unless it is specified in the question that units should be included.

Some questions in the **Maths Practice Year 3 Question Book** have multiple answers. The explanations accompanying the answers in this document indicate where this is the case. For these questions, accept any possible answers according to the limits laid out. There is no preference for any examples provided in this document over other possible answers not listed and no preference for answers listed first.

Marking the 'Final practice' section

The timing for the 'Final practice' section is intended as a guide only. Some children may prefer to work through the section with a longer time limit or without a time limit.

The marking guidance for some questions indicates that children may receive one mark for a correct method that would lead to a correct answer. This is intended to recognise ability in cases where children have used the correct method but have made a calculation error that has led to the use of incorrect figures in their calculation.

After completing the 'Final practice' section, children may choose to revise topics that they have identified as challenging. If they are comfortable with the material already covered, you may wish to print out and award the editable certificate from the **Schofield & Sims** website to recognise their achievement. The child may then wish to advance to the **Maths Practice Year 4 Question Book**.

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Counting in multiples (pages 4–5)

Practise

1. a. 8 16 24 28 36

A multiple is the result of multiplying one number by another number. It can be helpful to use an array when finding the answer (product) to a multiplication question. For example: 2×4 can be shown as an array. Draw 2 rows of 4 dots.



The total number of dots (8) is the product of 2×4 .

- b. 24 32 48 64 80
c. 100 200 250 350 400
d. 300 600 700 800 1000

2. a. 8

Use the answers to **Question 1** to complete the sentences. The 2nd multiple of 4 is the same as 2×4 .

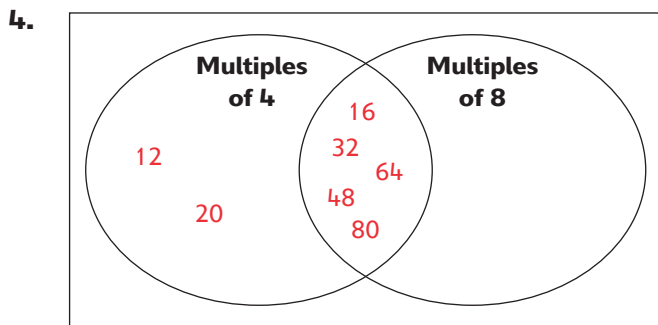
- b. 16 c. 40 d. 56 e. 40
f. 80 g. 64 h. 24

3. a. 150

Use the answers to **Question 1** to complete the sentences. The 3rd multiple of 50 is the same as 3×50 .

- b. 450 c. 800 d. 500 e. 100
f. 200 g. 700 h. 300

Extend



The Venn diagram sorts numbers that are multiples of 4 and multiples of 8. Put numbers that are multiples of both 4 and 8 in the section where the two circles overlap. For example: 16 is a multiple of both 4 and 8, so it goes into the overlapping section. 12 is a multiple of 4 but not 8, so it goes in the left-hand circle. The Venn diagram will show that all multiples of 8 are also multiples of 4.

5. a. 8
List the 8 times tables to find the missing number. $8 \times 8 = 64$.

- b. 8 c. 24 d. 4 e. 4 f. 8

Apply

6. 950 pencils

Read word problems carefully and identify the numbers and operations needed. Multiply to find the number of pencils in the large boxes and the number of pencils in the small boxes, then add the answers to find the total number of pencils. $7 \times 100 = 700$. $5 \times 50 = 250$. $700 + 250 = 950$.

7. a. 12 robins

Look at the key. Each symbol of a bird represents 4 birds. Find the number of symbols shown in the Robins row. There are 3 symbols. Multiply 3 symbols by 4. $3 \times 4 = 12$.

- b. 12 wrens

Calculate the number of wrens and the number of magpies. Then find the difference between the two totals. Wrens: $5 \times 4 = 20$. Magpies: $2 \times 4 = 8$. $20 - 8 = 12$.

Place value (pages 6–7)

Practise

1. a. 2 or two (ones)

When working out number and place value, it can be helpful to put numbers into a place value chart. For example:

H	T	O
4	0	2

In the three-digit number 402, there are 4 hundreds, 0 tens and 2 ones. The digit 2 appears in the ones column, so it is worth 2 or two ones. Make sure the '0' in 402 is put in the tens column.

- b. 200 or two hundred(s)
c. 20 or twenty or two tens

2. a. 600 or six hundred(s)
b. 60 or sixty or six tens
c. 6 or six (ones)

3. a. 50 or fifty or five tens
b. 5 or five (ones)
c. 500 or five hundred(s)

4. a. **902** **900**

Identify any number with the digit 9 in the hundreds column. It may help to use a place value chart for each number.

- b. **108** **518**

5. a. **609, 769, 787, 789, 825**

Use a place value chart to compare the numbers. Work from the left-hand column to the right. The three-digit numbers with the least value use the lowest value digits. 609 has the least value because it only has 6 hundreds. Use the tens and ones to order the numbers with 7 hundreds. 825 has the greatest value because it has 8 hundreds.

- b. **301, 309, 321, 325, 387**

Extend

6. a. **60**

Check the place value of the digits in 567. 60 is not given in the partitioned numbers, so it is the missing number.

- b. **700** c. **168** d. **214**

7. a. **480**

Use the method used in **Question 5**. Identify the largest number using the hundreds and tens.

- b. **901** c. **587** d. **383**

8. a. **665**

The number must be less than 670 and greater than 655. Out of the four numbers, only 533 and 665 are less than 670. Out of those two numbers, only 665 is greater than 655.

- b. **533**
c. **685**
d. **700**

Apply

9. **5** £100 notes, **6** £10 notes and **2** £1 coins

10. **401, 311, 302, 221, 212, 203**

The two counters could be put in the hundreds, tens or ones column, which would make 401, 221 or 203. One counter could be placed in the hundreds column and one could be placed in either the tens or the ones column, which would make 311 or 302. One counter could be placed in the tens column and one could be placed in the ones column, which would make 212.

Reading and writing numbers (pages 8–9)

Practise

1. **A: four hundred and twenty-four**
B: four hundred and twelve
C: four hundred and two

Count the numbers of beads on each rod of the first abacus. Count the hundreds rod: 4 beads (four hundreds). Count the tens rod: 2 beads (two tens). Count the ones rod: 4 beads (four ones). Combine the hundreds, tens and ones: four hundred and twenty-four. Use the same method for the other abacuses.

2. a.

Hundreds	Tens	Ones
● ● ● ●	●	● ● ● ●
●		● ● ● ●
		● ●

four hundred and eighteen

Look at the value of each digit in turn.

The 4 has a value of 400 (four hundreds).

The 1 has a value of 10 (one ten). The 8

has a value of 8 (eight ones). Draw counters

on the place value chart to represent the

value of each digit.

- b.

Hundreds	Tens	Ones
● ● ● ●	● ● ● ●	● ● ● ●
● ● ● ●	●	

six hundred and forty-three

Extend

3. a. **324**

There are 3 place value counters worth 100, which represents 300. There are 2 place value counters worth 10, which represents 20. There are 4 place value counters worth 1, which represents 4. Combine the hundreds, tens and ones. $300 + 20 + 4 = 324$.

- b. **197**

- c. **508**

- d. **450**

4. a. **798**

When writing a number in numerals, use the digits 0, 1, 2, 3, 4, 5, 6, 7, 8 or 9. Partition the number into hundreds, tens and ones.

For example: seven hundred and ninety-eight

is made up of seven hundred (700), ninety (90) and eight (8). Use the numerals 7, 9, 8 and put them in the correct position on a place value chart to represent each partition.

H	T	O
7	9	8

- b. eight hundred and sixty
c. 215

Apply

5. a. 632
Put the largest number in the hundreds column. Check that an even number is left. There is an even number left, so put this in the ones column and the last remaining number in the tens column.
- b. 623
c. 236
d. 263
6. £167
Write the numbers in digits and add them together. $£140 + £27 = £167$. Make sure that the hundreds, tens and ones remain in the correct columns.

Representing numbers (pages 10–11)

Practise

1. a. 437
There are 4 place value counters worth 100, which represents 400. There are 3 place value counters worth 10, which represents 30. There are 7 place value counters worth 1, which represents 7. Combine the hundreds, tens and ones. $400 + 30 + 7 = 437$.
- b. 625
2. a. 452
There are 4 beads worth 100, which represents 400. There are 5 beads worth 10, which represents 50. There are 2 beads worth 1, which represents 2. Combine the hundreds, tens and ones. $400 + 50 + 2 = 452$.
- b. 730
3. a. 719
Combine the hundreds, tens and ones. $700 + 10 + 9 = 719$.
- b. 261

Extend

4. a.

Hundreds	Tens	Ones
100 100 100	10 10 10	1 1 1
100 100 100	10 10	1 1 1
100		1 1

Look at the number given at the top of the place value chart: $758 = 700 + 50 + 8$. Identify which columns need counters added to them to make 758. There are 7 place value counters worth 100, which represents 700. No 100 place value counters are needed. There are 5 place value counters worth 10, which represents 50. No 10 place value counters are needed. There are 0 place value counters worth 1, which represents 0. 8 place value counters are needed to make 8.

b.

Hundreds	Tens	Ones
100 100 100	10 10	1 1 1
100 100 100		1
100 100 100		

5. a. 40
Identify the whole, which is 543. Partition the whole to find the missing number. $500 + 40 + 3$. The missing part is 40.
- b. 9

Apply

6. Both
Toby uses 1 hundred flat, 6 tens rods and seven ones cubes and Kiran uses 16 tens counters and 7 ones counters. Both Toby and Kiran correctly represent 167.
Note that Kiran could have chosen to use 1 hundred counter and 6 tens counters instead of 16 tens counters, but both sets of counters represent the same value.

Comparing and ordering numbers (pages 12–13)

Practise

1. B, C, A
Identify the number shown in each set of place value counters. A: 444. B: 554. C: 543. Put them in order from largest to smallest. Begin by looking at the value of the hundreds digit. B and

C both have 5 hundreds, so look at the value of the tens digit. B has 5 tens, which is more than C as C has 4 tens. B is larger than C, which is the second largest number.

2. a. **891**

Look at the value of the hundreds digit.
8 hundreds are more than 6 hundreds so $891 > 678$.

b. **981** c. **345** d. **491**

e. **358** f. **842**

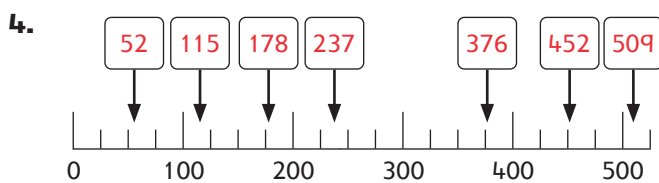
3. a. **<**

Look at the value of each digit in the number. Decide which symbol fits between the two numbers so that the number statement is correct. Seven hundred and seventy-eight is less than eight hundred and one.

b. **>** c. **>** d. **<** e. **>**

f. **>** g. **<** h. **<** i. **>**

Extend



Identify the place value of each digit in the number. Think about where the number would be placed on the number line. For example: 115 is made up of 1 hundred, 1 ten and 5 ones. It would sit between 100 and 200 on the number line. There are two boxes between 100 and 200. Look for another number that has 1 hundred. 178 is made up of 1 hundred, 7 tens and 8 ones. 178 is larger than 115 because it has 7 tens compared with 1 ten in 115. 115 goes in the first box and 178 goes in the second box.

5. **614, 825, 827, 828, 890**

Look at the value of the hundreds digit. Choose the number with the smallest hundreds digit.

H	T	O
8	2	7
8	9	0
8	2	5
6	1	4
8	2	8

614 has 6 hundreds, so it is the smallest number. The other numbers have 8 hundreds. Because the hundreds digits are the same, look at the value

of the tens digit. Choose the tens digit with the smallest value.

H	T	O
8	2	7
8	9	0
8	2	5
6	1	4
8	2	8

827, 825 and 828 all have the same number of tens, so look at the value of the ones digit.

H	T	O
8	2	7
8	9	0
8	2	5
6	1	4
8	2	8

825 has the smallest ones digit, so it is smaller than 827 and is second. 827 is third and 828 is fourth. Then 890 is last.

Apply

6. a. **831**

Use a place value chart. To make the largest number, position the largest number card in the hundreds column and the second largest number in the tens column

H	T	O
8	3	1

b. **138**

To make the smallest number, position the smallest number card in the hundreds column and the second smallest number in the tens column.

H	T	O
1	3	8

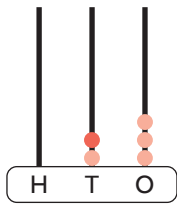
7. **300 (accept B) Because there are three hundreds in 300 and there is only one hundred in 110 and 111.**

Identify the number shown by each representation.
A: 1 hundred flat (100) + 1 ten rod (10) = 110.
B: 3 beads worth 100 = 300. C: 1 × 100 counter, 1 × 10 counter, 1 × 1 counter = 111. The largest number is 300 because it has a greater number of hundreds than 110 or 111.

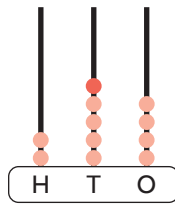
10 or 100 more or less (pages 14–15)

Practise

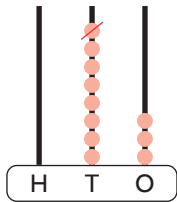
1. a. 23



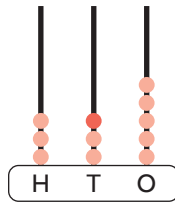
b. 254



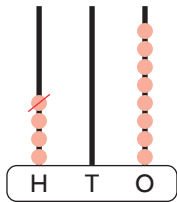
c. 73



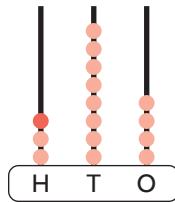
d. 335



e. 308



f. 384



Extend

2. a. 56 146 166 256

Begin with the number in the middle column. Look at the heading and make sure that the correct digit of the number is being changed. For example: 10 less than 156 = 146 and 100 less than 156 = 56 (there is a 0 in the hundreds column).

b. 193 283 303 393

c. 409 499 519 609

3. a. 495 515

$505 - 10 = 495$. $505 + 10 = 515$.

b. 87 97

$107 - 10 = 97$. $97 - 10 = 87$.

c. 35 45

$25 + 10 = 35$. $35 + 10 = 45$.

Apply

4. Yes

10 more than 189 is 199, which is nearly 200.

Answers will vary. Accept any answer that shows 199 is approximately 200.

5. £115

Work out how much Mo has spent in total. $£6 + £4 = £10$. Subtract the amount he has spent from the amount he was given to find

the amount he puts in his bank account.

$£25 - £10 = £15$. Add the original amount in his bank account to the amount he puts in to find the total he has saved. $£100 + £15 = £115$.

Mental addition and subtraction (pages 16–17)

Practise

1. a. 348

A place value chart may be useful for this question.

H	T	O
3	4	5
		3
3	4	8

b. 681 c. 491 d. 563 e. 357

f. 788 g. 569 h. 643 i. 796

2. a. 589

A place value chart may be useful for this question.

H	T	O
5	6	9
	2	0
5	8	9

b. 288 c. 433 d. 468 e. 505

f. 479 g. 698 h. 765 i. 868

3. a. 545

A place value chart may be useful for this question.

H	T	O
2	4	5
3	0	0
5	4	5

b. 702 c. 1134 d. 621 e. 128

f. 94 g. 986 h. 129 i. 8

Extend

4. a. No exchange of 10s: $566 - 3$ $565 - 2$ $588 - 4$

Need to exchange 10s: $568 - 9$ $563 - 7$ $591 - 8$

Decide if tens will need to be exchanged to complete each calculation. If the ones being subtracted are greater than the ones in the

three-digit number, tens will need to be exchanged.

- b. $568 - 9 = 559$ $566 - 3 = 563$
 $563 - 7 = 556$ $565 - 2 = 563$
 $591 - 8 = 583$ $588 - 4 = 584$

Accept any three correct answers. Answers can be from either column in the table or from both columns. Answers can be checked by performing the inverse operation, which is addition.

5. a. 693

Use a place value chart to find 40 less or 40 more than a number.

H	T	O
6	5	3
	4	0
6	9	3

- b. 682 762 c. 420 460

Apply

6. a. 288 children

Read word problems carefully and identify the numbers and operations needed. Subtract the number of children who went on the trip from the number of children at school in the morning. $348 - 60 = 288$.

- b. 188 letters

Addition in columns (pages 18–19)

Practise

1. a. 464

Hundreds	Tens	Ones
100	10 10	1 1 1
100 100 100	10 10 10 10	1
100 100 100 100	10 10 10 10 10 10	1 1 1 1

Begin with the ones: $3 + 1 = 4$. Draw 4 counters in the ones column. Now add the tens: $2 \text{ tens} + 4 \text{ tens} = 6 \text{ tens}$. Draw 6 counters in the tens column. Now add the hundreds: $1 \text{ hundreds} + 3 \text{ hundreds} = 4 \text{ hundreds}$. Draw 4 counters in the hundreds column. Count the counters and write the number in digits.

- b. 576

Hundreds	Tens	Ones
100 100	10 10 10	1 1 1 1
100 100 100	10 10 10 10	1 1
100 100 100 100 100	10 10 10 10 10 10 10	1 1 1 1 1 1

- c. 854

Hundreds	Tens	Ones
100 100 100 100	10 10 10 10 10	1 1 1
100 100 100 100		1
100 100 100 100 100 100 100 100	10 10 10 10 10	1 1 1 1

- d. 723

Hundreds	Tens	Ones
100 100 100	10 10 10 10 10	1 1 1 1 1 1
100 100 100	10 10 10 10 10 10	1 1 1 1 1 1 1
100 100 100 100 100 100 100	10 10	1 1 1

Extend

2. a.
- $$\begin{array}{r} 400 + 30 + 2 \\ + 100 + 40 + 5 \\ \hline 500 + 70 + 7 = 577 \end{array}$$

Estimate: $500 (400 + 100)$

Check: $577 - 145 = 432$

Round the numbers to the nearest hundred to estimate the answer. $400 + 100 = 500$. Then use the expanded column addition method to first add the ones, then the tens, then the hundreds. $2 + 5 = 7$. $30 + 40 = 70$. $400 + 100 = 500$. $500 + 70 + 7 = 577$. Finally, check the answer by performing the inverse operation, which is subtraction. $577 - 145 = 432$.

b.

$$\begin{array}{r} 500 + 60 + 4 \\ + 400 + 20 + 3 \\ \hline 900 + 80 + 7 = 987 \end{array}$$

Estimate: $1000 (600 + 400)$
Check: $987 - 423 = 564$

3. a.

$$\begin{array}{r} 226 \\ + 353 \\ \hline 579 \end{array}$$

Estimate: $600 (200 + 400)$
Check: $579 - 353 = 226$
Round the numbers to the nearest hundred to estimate the answer. $200 + 400 = 600$. Then use the formal column method to first add the ones, then the tens, then the hundreds. $6 + 3 = 9$. $2 + 5 = 7$. $2 + 3 = 5$. Finally, check the answer by performing the inverse operation, which is subtraction. $579 - 353 = 226$.

b.

$$\begin{array}{r} 453 \\ + 545 \\ \hline 998 \end{array}$$

Estimate: $1000 (500 + 500)$
Check: $998 - 453 = 545$

4. a. **671**
A column method should be used to calculate these answers. Check that the hundreds, tens and ones are correctly aligned in their columns.

b. **435**

Apply

5. a. $186 + 312 = 498$
Use the inverse operation to find the answer. Begin with the ones: $8 - 6 = 2$. Then find the missing tens digit: $9 - 8 = 1$.

b. $184 + 909 = 1093$
Work forward through the addition calculation from the ones column to find the missing

numbers. $4 + 9 = 13$, so 9 is the missing number. Exchange the 10 ones for 1 ten. The missing number in the tens column must be 0 because $8 + \text{the exchanged } 1 = 9$. To find the missing thousands digit, add together the hundreds digits. $1 + 9 = 10$. Exchange the 10 hundreds for 1 thousand. The missing digit is 1.

6. a. **531 stars**

Read word problems carefully and identify the numbers and operations needed. Increase means add. Complete the calculation using a written method.

$$\begin{array}{r} 258 \\ + 273 \\ \hline 531 \\ \hline 11 \end{array}$$

b. **720 grams**

c. **868 cans**

Subtraction in columns (pages 20–21)

Practise

1. a. **221**

Hundreds	Tens	Ones
100 100 100	10 10 10	1 1 1
100 100	10 10 10	

Subtract the ones: $3 - 2 = 1$. Cross out the counters that have been subtracted. Now subtract the tens: $6 \text{ tens} - 4 \text{ tens} = 2 \text{ tens}$. Now subtract the hundreds: $5 \text{ hundreds} - 3 \text{ hundreds} = 2 \text{ hundreds}$. Count the counters in each column that have not been crossed out and write the numbers in digits.

b. **533**

Hundreds	Tens	Ones
100 100 100	10 10 10	1 1 1
100 100 100	10 10 10	1
100	10 10	

c. 347

Hundreds	Tens	Ones
100 100 100 100	10 10 10 10 10 10 10 10	1 1 1 1 1 1 1 1 1 1 1 1

d. 235

Hundreds	Tens	Ones
100 100 100	10 10 10 10 10 10	1 1 1 1 1 1 1 1 1 1 1 1 1 1

e. 385

Hundreds	Tens	Ones
100 100 100 100 100 100	10 10 10 10 10 10 10 10 10 10 10 10	1 1 1 1 1 1 1 1 1 1

f. 540

Hundreds	Tens	Ones
100 100 100 100 100 100 100 100	10 10 10 10 10 10 10 10 10 10	1 1 1 1 1 1 1

Extend

2. a.

$$\begin{array}{r} 500 + 60 + 8 \\ - 300 + 30 + 2 \\ \hline 200 + 30 + 6 = 236 \end{array}$$

Estimate: 300 (600 - 300)
Check: 236 + 332 = 568

b.

$$\begin{array}{r} 400 + 40 + 5 \\ - 200 + 10 + 3 \\ \hline 200 + 30 + 2 = 232 \end{array}$$

Estimate: 200 (400 - 200)

Check: 232 + 213 = 445

3. a.

$$\begin{array}{r} 968 \\ - 654 \\ \hline 314 \end{array}$$

Estimate: 300 (1000 - 700)

Check: 314 + 654 = 968

b.

$$\begin{array}{r} 843 \\ - 512 \\ \hline 331 \end{array}$$

Estimate: 300 (800 - 500)

Check: 331 + 512 = 843

4. a. 132

b. 473

Apply

5. a. 369 - 225 = 144

Begin with the ones: 9 - 5 = 4 so the missing digit is 4. Now subtract the tens: 6 - ? = 4. 6 - 2 = 4 so the missing digit is 2.

b. 466 - 238 = 228

6. a. £253

Read word problems carefully and identify the numbers and operations needed. Decrease means subtract. Complete the calculation using a written method.

$$\begin{array}{r} 378 \\ - 125 \\ \hline 253 \end{array}$$

b. 387 people

c. 24m

Mental multiplication and division (pages 22-23)

Practise

1. a. 3 b. 9 c. 24 d. 33
e. 10 f. 8 g. 4 h. 12
i. 9 j. 5 k. 6 l. 7
2. a. 8 b. 16 c. 0 d. 32
e. 11 f. 6 g. 1 h. 9
i. 12 j. 3 k. 40 l. 7
3. a. 16 b. 24 c. 80 d. 64

- e. 4 f. 12 g. 7 h. 5
i. 3 j. 2 k. 88 l. 6

Extend

4. a.

x	3	4	8
2	6	8	16
5	15	20	40
8	24	32	64

Calculate the number in the shaded part of the grid using the calculation 3×2 . Work through all the multiplications to complete the grid.

b.

x	6	5	7
8	48	40	56
3	18	15	21
10	60	50	70

Calculate the number in the shaded part of the grid using the calculation $48 \div 6$.

5. a. $3 \times 80 = 240$ $240 \div 80 = 3$
Use the multiplication facts $3 \times 8 = 24$ and $240 = 24 \times 10$. $240 = 3 \times 8 \times 10 = 3 \times 80$. Use the fact that division is the inverse of multiplication: $240 = 3 \times 80$ so $240 \div 80 = 3$.
- b. $9 \times 40 = 360$ $360 \div 40 = 9$
- c. $80 \times 8 = 640$ $640 \div 8 = 80$

Apply

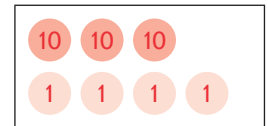
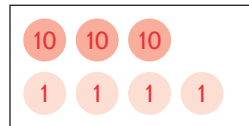
6. a. **Bags**
Read word problems carefully and identify the numbers and operations needed. Calculate the number of balls in the boxes and in the bags. Then compare the two numbers. $5 \times 30 = 150$. $8 \times 20 = 160$. 160 is more than 150. There are more balls in total in the bags.
- b. **70 tins**
Divide 560 tins by 8 boxes. $560 \div 8 = 70$.

Written multiplication and division (pages 24–25)

Practise

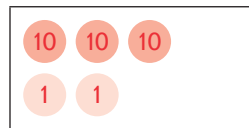
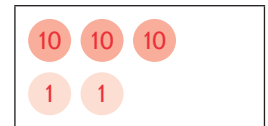
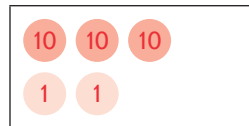
1. a. $32 \times 2 = 64$ $30 \times 2 = 60$ $2 \times 2 = 4$
Multiply the ones: $2 \times 2 = 4$. Multiply the tens: $30 \times 2 = 60$. Recombine the tens and ones to get the whole: $32 \times 2 = 60 + 4 = 64$.
- b. $41 \times 5 = 205$ $40 \times 5 = 200$ $1 \times 5 = 5$
- c. $33 \times 3 = 99$ $30 \times 3 = 90$ $3 \times 3 = 9$

2. a. 34



Divide the tens equally. Take turns to draw 1 tens counter into each group. Divide the ones equally. Take turns to draw 1 ones counter into each group. Count the number of tens and ones in each group.

- b. 32



Extend

3. a. 124
Partition 31 into tens and ones to get 30 and 1. Multiply each partition by 4. $30 \times 4 = 120$. $1 \times 4 = 4$. Recombine the tens and ones. $120 + 4 = 124$. Alternatively, use a short multiplication method:

$$\begin{array}{r} 31 \\ \times 4 \\ \hline 124 \end{array}$$

- b. 168 c. 168 d. 66
e. 102 f. 138 g. 216
h. 174 i. 592 j. 252

4. a. 23
Partition 69 into tens and ones to get 60 and 9. Divide each partition by 3. $60 \div 3 = 20$. $9 \div 3 = 3$. Recombine the tens and ones. $20 + 3 = 23$.

- b. 21 c. 33 d. 31 e. 23
f. 29 g. 19 h. 18

Apply

5. a. 1
Divide 19 by 6. $3 \times 6 = 18$ so $19 \div 6 = 3r.1$.
- b. 2
- c. 2
6. brown sugar: 320g plain flour: 480g
ginger: 8 tsp butter: 240g

Multiplication and division word problems (pages 26–27)

Practise

- 54 bananas**
Read word problems carefully and identify the numbers and operations needed. There are 9 lots of 6 bananas. $9 \times 6 = 54$. Use the illustration to count in groups of 6 if helpful.
 - 72**
 - 56 children**
- 4 boxes**
 - 24kg**
Count the number of boxes on the left-hand side of the balance scale. There are 4 boxes. Find the mass of 1 box by dividing the total mass of all 4 boxes (96kg) by 4. $96 \div 4 = 24$ kg.
 - 28 books**

Extend

- 80 biscuits**
Multiply the number of jars by the number of biscuits in each. $8 \text{ jars} \times 6 \text{ biscuits in each} = 48 \text{ biscuits}$. $4 \text{ jars} \times 8 \text{ biscuits in each} = 32 \text{ biscuits}$. $48 + 32 = 80 \text{ biscuits total}$.
 - 344 cans**

Apply

4. a.

Roast	Vegetable	Vegetable
Chicken	Carrots	Peas
Chicken	Carrots	Beans
Chicken	Peas	Beans
Lamb	Carrots	Peas
Lamb	Carrots	Beans
Lamb	Peas	Beans
Nut Loaf	Carrots	Peas
Nut Loaf	Carrots	Beans
Nut Loaf	Peas	Beans

Use a systematic method to make sure all combinations are recorded.

- b. 9

Tenths (pages 28–29)

Practise

- $\frac{3}{10}$

The circle is split into 10 equal parts. Three parts are shaded. The fraction shown is $\frac{3}{10}$.

- b. $\frac{5}{10}$ (or $\frac{1}{2}$)

There are 10 stars. Five stars are shaded. The fraction shown is $\frac{5}{10}$.

- c. $\frac{6}{10}$ (or $\frac{3}{5}$)

There are 10 blocks in the bar. Six blocks are shaded. The fraction shown is $\frac{6}{10}$.

- $\frac{4}{10}$ $\frac{7}{10}$

The fractions in the sequence increase by $\frac{1}{10}$ each time. Add $\frac{1}{10}$ to $\frac{3}{10}$ to get $\frac{4}{10}$. Add $\frac{1}{10}$ to $\frac{6}{10}$ to get $\frac{7}{10}$.

- b. $1\frac{6}{10}$ 2

The fractions in the sequence increase by $\frac{1}{10}$ each time. Remember $1\frac{10}{10}$ is equal to 2.

- c. $5\frac{4}{10}$

The fractions in the sequence decrease by $\frac{1}{10}$ each time.

- $\frac{7}{10}$

The whole is equal to 1. One part is equal to $\frac{3}{10}$ so the missing part is equal to $\frac{7}{10}$.

- b. $\frac{3}{10}$

The whole is equal to $\frac{8}{10}$. One part is equal to $\frac{4}{10}$. Another part is equal to $\frac{1}{10}$. The total of the two parts is equal to $\frac{5}{10}$. The missing part is equal to $\frac{3}{10}$.

- c. $\frac{5}{10}$ $\frac{1}{10}$

There are two wholes in the part-whole diagram. The first missing part is $\frac{5}{10}$. This is the whole of the next diagram. Use this to work out the other missing part, which is $\frac{1}{10}$.

Extend

- $\frac{4}{10}$

$4 \div 10 = \frac{4}{10}$. When dividing by 10, the number moves one place to the right on the place value chart.

0	.	t
4		

↘

0	.	4
---	---	---

- b. $\frac{6}{10}$ c. $\frac{9}{10}$ d. $\frac{5}{10}$ e. 2

- f. 10 g. 1 h. $\frac{3}{10}$ i. 10

Apply

5. $\frac{4}{10}$

Solve this word problem using a bar model. There are 10 parts on the bar model. $\frac{2}{10}$ of the fruit salad is pineapple and $\frac{4}{10}$ is grape. Once these have been added, fill the rest of the bars in as melon.

P	P	G	G	G	G	M	M	M	M
---	---	---	---	---	---	---	---	---	---

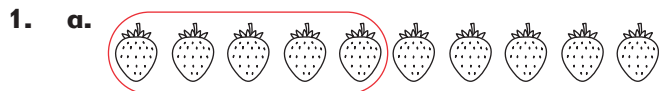
The rest is melon. The bar model shows that $\frac{4}{10}$ are melon.

6. 25 presents

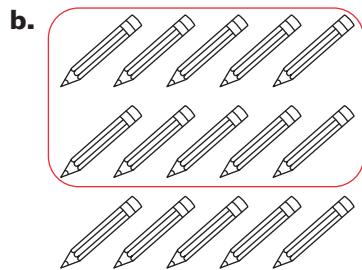
Use the bar model in the question to help. If Neema can wrap 1 gift with 20cm of ribbon, she can wrap 5 gifts with 1m. Neema has a ball of ribbon that is 5m long. If Neema can wrap 5 presents with 1m, then Neema can wrap $5 \times 5 = 25$ presents with 5m.

Finding fractions of a number (pages 30–31)

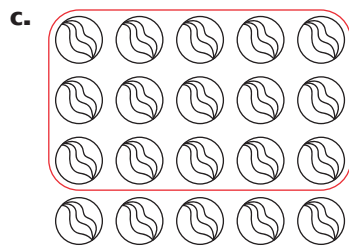
Practise



Find half of 10 strawberries. This is the same as dividing 10 by 2.



Find one third of 15 pencils. This is the same as dividing 15 by 3. This is equal to 5 pencils. To find two thirds, multiply one third by 2. $5 \times 2 = 10$, so $\frac{2}{3}$ of 15 is 10.



2. a. 3
The bar shows the whole. This bar is divided into 8 equal parts. 1 part is equal to 3.

- b. 6
c. 15

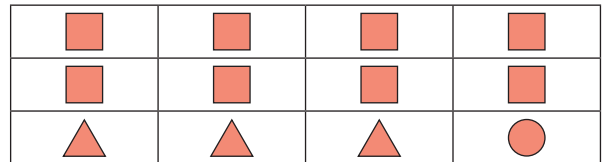
Extend

3. a. 4
The whole bar is equal to 16. The bar is divided into four equal parts. One shaded part is equal to 4 ($16 \div 4$).
- b. 5
- c. 18
One part is equal to 3. The bar is divided into six equal parts. The whole is equal to 18.
- d. 36
4. a. 3
Divide the whole (30) by 10 to find one part, which equals 3.
- b. 5
- c. 8
- d. 12
Divide the whole (30) by 10 to find one part, which equals 3. To calculate 4 parts multiply $3 \times 4 = 12$.
- e. 10
- f. 27

Apply

5. Ben
Because he scored 48 marks and Sara only scored 40 marks.
Ben: $60 \div 5$ equal parts = 12. One part = 12, so four parts = 48. Ben scored 48 marks. Sara: $60 \div 3$ equal parts = 20. One part = 20, so two parts = 40. Sara scored 40 marks.

6. $\frac{1}{12}$

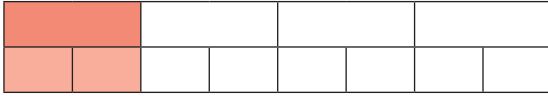


Use the grid provided to work out the answer by drawing on the squares, circles and triangles. Count the number of spaces on the grid. There are 12 spaces. $\frac{2}{3}$ of the grid is covered with squares. $\frac{2}{3}$ of 12 spaces = 8 squares. $\frac{1}{4}$ of the grid is covered with triangles. $\frac{1}{4}$ of 12 spaces = 3 triangles. Fill the rest of the spaces on the grid with circles. Count the circles. There is 1 circle on the grid. $\frac{1}{12}$ of the grid is covered in circles.

Equivalent fractions (pages 32–33)

Practise

1. a. $\frac{2}{8}$

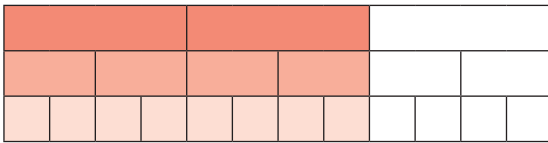


The dark shaded part represents one quarter. The light shaded parts represent eighths. Count the number of eighths. There are 2 light shaded parts so $\frac{1}{4} = \frac{2}{8}$.

b. $\frac{4}{6}$

c. $\frac{2}{5}$

2. a. $\frac{4}{6} = \frac{8}{12}$



Count the number of parts in each bar. The top bar is split into thirds, so the denominator is 3. Shade two thirds, as the numerator is 2. Shade 4 parts in the middle bar as the numerator in the fraction is 4. It has been split into 6 parts so the denominator is 6. Shade parts in the bottom row so that it has the same amount shaded as in the top and middle rows. There are 8 parts shaded so the numerator is 8.

b. $\frac{6}{10} = \frac{12}{20}$

Extend

3. a. $\frac{1}{2} = \frac{3}{6} = \frac{6}{12}$

b. $\frac{1}{3} = \frac{2}{6} = \frac{4}{12}$

c. $\frac{5}{10} = \frac{2}{4} = \frac{3}{6}$

d. $\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$

4. B D

Find the denominator by counting the number of parts that the whole has been split into. Find the numerator by counting the number of shaded parts. Use the fraction wall in **Question 3** to decide which fractions are equivalent.

Apply

5. She has multiplied the numerator and denominator by 2.

Answers may vary, but should notice that both the numerator and denominator in each pair have been multiplied by two.

Comparing and ordering fractions (pages 34–35)

Practise

1. a. <

Look at the fraction bars to help compare the fractions. Both fractions have the same denominator so compare the numerators. 1 part is less than 3 parts so $\frac{1}{4} < \frac{3}{4}$.

b. >

c. <

d. >

2. a. $\frac{1}{8}, \frac{3}{8}, \frac{5}{8}, \frac{7}{8}, \frac{8}{8}$ (or 1)

Look at the fraction wheels to help compare the fractions. Count the number of equal parts that all the wheels have been split into. All the fractions have the same denominator, so compare the numerators.

b. $\frac{6}{10}, \frac{7}{10}, \frac{8}{10}, \frac{9}{10}, \frac{10}{10}$ (or 1)

Extend

3. a. false b. true c. true d. true

4. a. $\frac{1}{2}$

The fractions all have the same numerator, so compare the denominators. The smaller the denominator, the larger the fraction. 2 is the smallest denominator, so $\frac{1}{2}$ is the largest fraction.

b. $\frac{1}{3}$ c. $\frac{1}{2}$

5. Greater than $\frac{1}{5}$: $\frac{1}{2}, \frac{3}{5}, \frac{1}{4}$ Less than $\frac{1}{8}$: $\frac{1}{10}, \frac{1}{12}$

Use the fraction wall from **Question 3** to help sort the fractions into the two sets. $\frac{1}{12}$ will be smaller than $\frac{1}{10}$ and therefore less than $\frac{1}{8}$.

Apply

6. Mia

The bigger the denominator, the smaller the piece.

Adding fractions (pages 36–37)

Practise

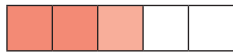
1. a. $\frac{5}{7} + \frac{2}{7}$

Count the number of shaded parts. Count the number of unshaded parts. Add the fractions together. The denominator stays the same and the numerators are added together.

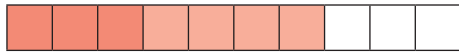
b. $\frac{3}{8}$ $\frac{5}{8}$ c. $\frac{5}{9}$ $\frac{4}{9}$

2. a. $\frac{3}{5}$

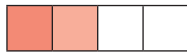
Shade two fifths. Then shade one fifth in a different colour. Count the total number of shaded parts.



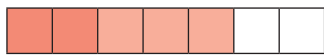
b. $\frac{7}{10}$



c. $\frac{2}{4}$ (or $\frac{1}{2}$)

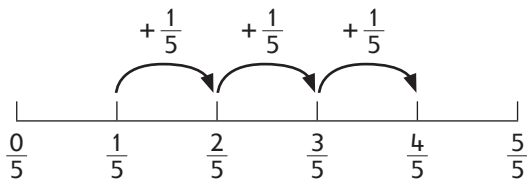


d. $\frac{5}{7}$



3. a. $\frac{4}{5}$

Start at $\frac{1}{5}$ on the number line. Count on $\frac{3}{5}$.



b. $\frac{6}{9}$

Extend

4. a. $\frac{6}{8}$ (or $\frac{3}{4}$)

Each circle is split into 8 parts, so the parts are eighths. The first circle has $\frac{1}{8}$. The second circle has $\frac{3}{8}$. The third circle has $\frac{2}{8}$. $1 + 3 + 2 = 6$. There are $\frac{6}{8}$.

b. $\frac{8}{12}$ (or $\frac{2}{3}$)

5. a. True

b. True

c. False

d. True

Apply

6. $\frac{2}{10}$

Read word problems carefully and identify the numbers and operations needed. Add the amounts read on Saturday and Sunday. Subtract the total amount read on Saturday and Sunday from 1. $\frac{3}{10} + \frac{5}{10} = \frac{8}{10}$. $1 - \frac{8}{10} = \frac{2}{10}$.

7. a. $\frac{5}{6}$

Calculate the value of the star. $\frac{1}{6} + \frac{1}{6} = \frac{2}{6}$.
Calculate the value of the circle. $\frac{2}{6} + \frac{1}{6} = \frac{3}{6}$.
Calculate the value of the star plus the value of the circle. $\frac{2}{6} + \frac{3}{6} = \frac{5}{6}$.

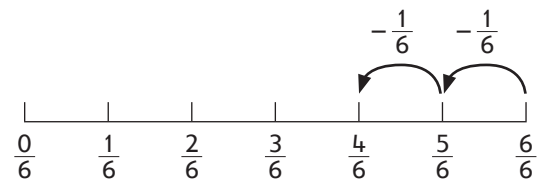
b. $1\frac{3}{8}$

Subtracting fractions (pages 38–39)

Practise

1. a. $\frac{4}{6}$

Start at $\frac{6}{6}$ on the number line. Count back $\frac{2}{6}$ on the number line. The answer is $\frac{4}{6}$.



b. $\frac{5}{9}$

c. $\frac{3}{8}$

d. $\frac{2}{10}$

2. a. $\frac{6}{10}$

Count the number of beads on the bead string. There are 10 beads. Cross off 4 beads. There are 6 beads left. 6 out of 10 beads is written as $\frac{6}{10}$.

b. $\frac{7}{12}$

Extend

3. a. $\frac{6}{11}$

b. $\frac{5}{12}$

c. $\frac{2}{4}$

d. $\frac{7}{10}$

e. $\frac{2}{8}$

f. $\frac{3}{5}$

4. a. $\frac{1}{5}$

b. $\frac{4}{8}$

c. $\frac{6}{20}$

d. $\frac{2}{6}$

e. $\frac{8}{10}$

f. $\frac{2}{3}$

5. $\frac{7}{9} - \frac{5}{9} = \frac{2}{9}$

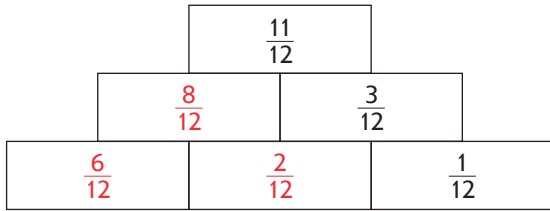
The arrow starts at $\frac{7}{9}$ and finishes at $\frac{2}{9}$. Count down from $\frac{7}{9}$ to see how many ninths have been subtracted from $\frac{7}{9}$ to make $\frac{2}{9}$. Five have been subtracted, so the other missing number in the calculation is $\frac{5}{9}$.

Apply

6. $\frac{5}{12}$

The whole pizza is cut into 12 slices. As a fraction, that is $\frac{12}{12}$. Maddie eats $\frac{3}{12}$. $\frac{12}{12} - \frac{3}{12} = \frac{9}{12}$. Noah eats 4 slices out of the original 12 slices. As a fraction, that is $\frac{4}{12}$. $\frac{9}{12} - \frac{4}{12} = \frac{5}{12}$.

7.



Begin by calculating the middle block of the bottom row. $\frac{3}{12} - \frac{1}{12} = \frac{2}{12}$. Calculate the top left-hand block on the second row. $\frac{11}{12} - \frac{3}{12} = \frac{8}{12}$. Calculate the left-hand block on the bottom row. $\frac{8}{12} - \frac{2}{12} = \frac{6}{12}$.

Length (pages 40–41)

Practise

- a. 12cm
Line the ruler up with the line. The 0 should be at the beginning of the line. Read the scale on the ruler where the line ends.

b. 8cm

c. 5cm
- Four lines should be drawn in the box. **Two lines will be longer than 8cm** and **two lines will be shorter than 6cm**.
- a. 40cm b. 13cm

c. 2m d. 15mm

Extend

- a. 59cm

$$\begin{array}{r} 30 + 6 \\ + 20 + 3 \\ \hline 50 + 9 = 59 \end{array}$$

b. 365cm

$$\begin{array}{r} 100 + 40 + 3 \\ + 200 + 20 + 2 \\ \hline 300 + 60 + 5 = 365 \end{array}$$

c. 593cm

d. 818cm

e. 909cm

f. 748cm
- a. 13cm

$$\begin{array}{r} 30 + 6 \\ - 20 + 3 \\ \hline 10 + 3 = 13 \end{array}$$

b. 121cm

$$\begin{array}{r} 200 + 40 + 3 \\ - 100 + 20 + 2 \\ \hline 100 + 20 + 1 = 121 \end{array}$$

- c. 319cm d. 303cm
- e. 361cm f. 175cm

Apply

- a. 11cm
Check that the pencil starts at 0cm. Draw a line at the end of the pencil. Read the scale on the ruler: 11cm.

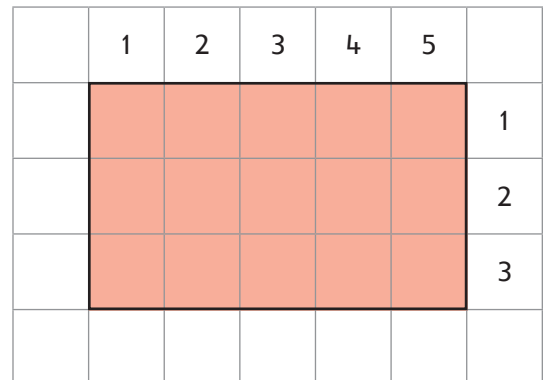
b. 9cm
Check that the pencil starts at 0cm. In this question it does not. Draw a line at the start of the pencil and read the scale. The pencil starts at 5cm. Draw a line at the end of the pencil and read the scale. The pencil ends at 14cm. To calculate the length of the pencil, find the difference between the start and end measurements. $14\text{cm} - 5\text{cm} = 9\text{cm}$.
- Tom

Because 225cm is 20cm longer than 205cm. Tom's rope is 2m 25cm. $2\text{m} = 1\text{m} \times 2$ and $1\text{m} = 100\text{cm}$ so $2\text{m} = 200\text{cm}$. Tom's rope is 225cm. Ashley's rope is 205cm. Therefore, Tom's rope is 20cm longer than Ashley's rope ($225\text{cm} - 205\text{cm}$).

Perimeter (pages 42–43)

Practise

- a. 16cm
Count the squares that make up each side of the rectangle. Remember that opposite sides have equal length.

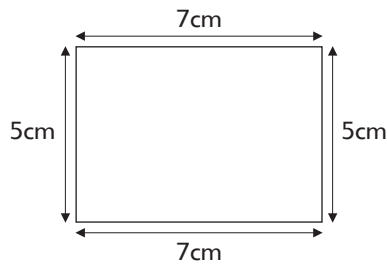


Add all the lengths together. $5 + 5 + 3 + 3 = 16\text{cm}$.

- b. 20cm c. 22cm

2. a. 24cm

Label each side of the rectangle with its measurement. Remember opposite sides have equal length. Add all the sides to calculate the perimeter: $7\text{cm} + 7\text{cm} + 5\text{cm} + 5\text{cm} = 24\text{cm}$.



b. 18cm

c. 50cm

Extend

3. a. 28cm

Use a ruler to measure and label the length of each side of the square. Add all the sides to calculate the perimeter: $7\text{cm} + 7\text{cm} + 7\text{cm} + 7\text{cm} = 28\text{cm}$.

b. 24cm

4. a. 42cm

Remember a rectangle has two opposite, equal-length sides. To get the perimeter, add two lots of the length to two lots of the width. $15\text{cm} + 15\text{cm} + 6\text{cm} + 6\text{cm} = 42\text{cm}$.

b. 64cm

c. 20cm

If the question gives the perimeter and one side, subtract two lots of the known side. $100\text{cm} - 30\text{cm} - 30\text{cm} = 40\text{cm}$. Divide the answer by 2 to find the other side. $40\text{cm} \div 2 = 20\text{cm}$.

Apply

5. a. 12cm

Remember a regular shape has equal-length sides. Count the number of sides. Divide the perimeter by the number of sides. $72\text{cm} \div 6 = 12\text{cm}$.

b. 24cm

Mass (pages 44–45)

Practise

1. a. g

b. kg

c. g

2. a. 400g

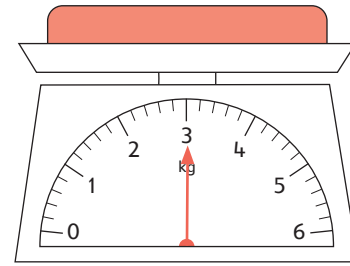
Read the scale to find the unit of measure. On this scale it is grams (g). Read the pointer, which shows the mass of the parcel on the scale. The pointer is pointing to a marked division: 400g.

b. 9kg

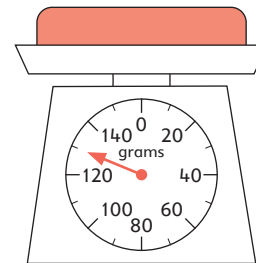
Read the scale to find the unit of measure. On this scale it is kilograms (kg). Read the pointer, which shows the mass of the parcel on the scale. The pointer is pointing to an unmarked division between 8kg and 10kg. To calculate the value of the unmarked division, find the difference between the two marked divisions. $10\text{kg} - 8\text{kg} = 2\text{kg}$. Then divide this by the number of equal parts between the two marked divisions. $2\text{kg} \div 2 = 1\text{kg}$. Each unmarked division is equal to 1kg. The mass of the parcel is 9kg.

c. 11kg

3. a.

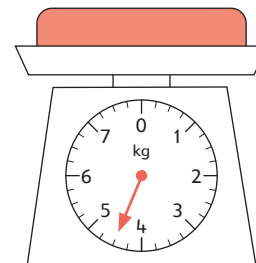


b.



Draw a pointer to the marked division showing half-way between 120 and 140.

c.



Extend

4. a. 96g

$$\begin{array}{r} 70 + 3 \\ + 20 + 3 \\ \hline 90 + 6 = 96 \end{array}$$

b. 283g

$$\begin{array}{r}
 200 + 50 + 6 \\
 + \quad 20 + 7 \\
 \hline
 200 + 80 + 3 = 283 \\
 \quad \quad \quad 10
 \end{array}$$

c. 493kg

d. 393kg

e. 741g

f. 607g

g. 809g

h. 851g

5. a. 42g

$$\begin{array}{r}
 60 + 5 \\
 - 20 + 3 \\
 \hline
 40 + 2 = 42
 \end{array}$$

b. 151g

$$\begin{array}{r}
 \quad \quad 200 \\
 \quad \quad \cancel{300} + \quad 20 + 3 \\
 - 100 + 70 + 2 \\
 \hline
 100 + 50 + 1 = 151
 \end{array}$$

c. 94kg

d. 581kg

e. 813g

f. 381g

g. 245g

h. 145g

Apply

6. 380g

Read word problems carefully and identify the numbers and operations needed. $975\text{g} - 595\text{g} = 380\text{g}$.

7. 300g

Read the scales to find the mass of each bag of sugar. The first bag has a mass of 400g. The second bag has a mass of 700g. Calculate the difference between the masses of the two bags of sugar. $700\text{g} - 400\text{g} = 300\text{g}$.

Capacity (pages 46–47)

Practise

1. a. ml

b. l

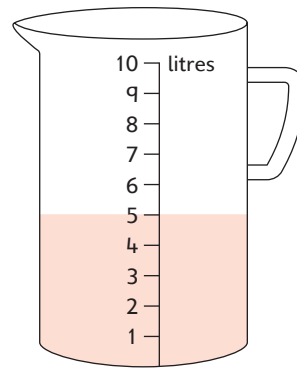
c. ml

2. a. 500 millilitres

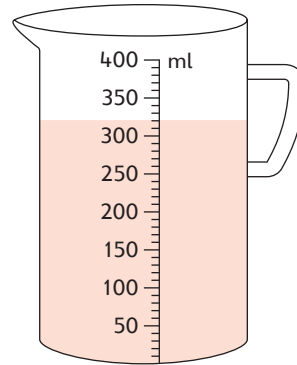
b. 9 litres

c. 500 millilitres

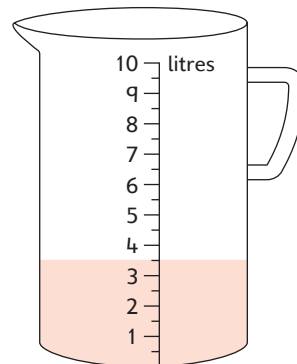
3. a.



b.



c.



Extend

4. a. 116ml

$$\begin{array}{r}
 80 + 4 \\
 + 30 + 2 \\
 \hline
 110 + 6 = 116
 \end{array}$$

b. 588ml

$$\begin{array}{r}
 300 + 40 + 2 \\
 + 200 + 40 + 6 \\
 \hline
 500 + 80 + 8 = 588
 \end{array}$$

c. 619ml

d. 981ml

e. 596ml

f. 360ml

g. 1008ml

h. 1195ml

5. a. 39ml

$$\begin{array}{r} \overset{60}{70} + \overset{1}{3} \\ - 30 + 4 \\ \hline 30 + 9 = 39 \end{array}$$

- b. 51ml

$$\begin{array}{r} 100 + 50 + 2 \\ - 100 + 0 + 1 \\ \hline 0 + 50 + 1 = 51 \end{array}$$

- c. 181ml d. 358ml e. 610ml
f. 637ml g. 64ml h. 185ml

Apply

6. 380 millilitres
Read word problems carefully and identify the numbers and operations needed. Add the amount of fruit squash and water together. $125\text{ml} + 255\text{ml} = 380\text{ml}$.
7. 250 millilitres
Read the scale on the jug. The jug contains 475ml. Subtract the amount of water poured out of the jug from the total amount of water in the jug. Complete the calculation. $475\text{ml} - 225\text{ml} = 250\text{ml}$.

Mixed measurements (pages 48–49)

Practise

1. D, B, A, E, C (or 99g, 96g, 78g, 74g, 72g)
Look at the place value of each digit.

T	O
7	8
9	6
7	2
9	9
7	4

Put the masses in order from heaviest to lightest. The heaviest fruit has the greatest mass, so choose the mass with the greatest number of tens. B and D both have 9 tens. B has 9 tens and 6 ones whereas D has 9 tens and 9 ones. D is heavier. Now look at A, C, E. All these fruits have 7 tens. A has 7 tens and 8 ones, C has 7 tens and 2 ones, E has 7 tens and 4 ones. A is heavier than E and C. E is heavier than C. The correct order of all five fruits is: D, B, A, E, C.

2. 4cm, 6cm, 8cm, 11cm, 13cm

Do not accept C, A, D, B, E. Measure each line using a ruler. A: 6cm. B: 11cm. C: 4cm. D: 8cm. E: 13cm. Look at the place value of each digit. Put the lengths in order from shortest to longest. Shortest has least length so choose the length with the least number of tens. The correct order is: 4cm, 6cm, 8cm, 11cm, 13cm.

Extend

3. 2100ml (or 2.1l)

Read word problems carefully and identify the numbers and operations needed. Read the scales on the jugs. Use the same unit for both measurements. 1.5 litres = 1500ml. 600ml is already in ml. Add the amounts of water in the jugs. $1500\text{ml} + 600\text{ml} = 2100\text{ml}$.

4. a. A = 30ml

Calculate the value of the unmarked division by finding the difference between the two marked divisions. $100\text{ml} - 0\text{ml} = 100\text{ml}$. Count the number of equal parts between the two marked divisions and divide the difference between the two marked divisions by the number of equal parts. $100\text{ml} \div 10 = 10\text{ml}$. Count on from 0 in tens. The arrow is pointing to 30ml.

- b. B = 500g C = 1000g
c. D = 40cm E = 160cm

Apply

5. 800g (or 0.8kg)

Convert kg to grams. Subtract the amount of flour used from the total amount of flour in the bag. $2\text{kg} = 2 \times 1000\text{g} = 2000\text{g}$. $1\text{kg } 200\text{g} = 1000\text{g} + 200\text{g} = 1200\text{g}$. $2000\text{g} - 1200\text{g} = 800\text{g}$.

6. 100ml (or 0.1kg)

Read the scales. Find the difference between 1 litre and the total amount of the two jugs. $550\text{ml} + 550\text{ml} = 1100\text{ml}$. Convert 1 litre to ml. $1 \times 1000\text{ml} = 1000\text{ml}$. $1100\text{ml} - 1000\text{ml} = 100\text{ml}$. Leo has 100ml extra water.

Time language and facts (pages 50–51)

Practise

1. a. Day refers to the time when there is daylight and night refers to the time when it is dark.
b. The times from 12 midnight to 12 midday are called a.m. times.
c. The times from 12 midday to 12 midnight are called p.m. times.

- d. **Morning** is the time between sunrise and midday.
- e. **Afternoon** is the time between midday and sunset.

2. **Yes**

Ali can say noon/12 p.m.

Extend

3. a. 12 b. 60 c. 24 d. 365

4. a. **February September July**

Identify the number of days in each month. September = 30 days. February = 28 days (or 29 days in a leap year). July = 31 days. Put them in order starting with the fewest.

b. **April January October**

Identify the number of days in each month. October = 31 days. April = 30 days. January = 31 days. Put them in order starting with the fewest. October and January both have 31 days. January comes before October, so put January first.

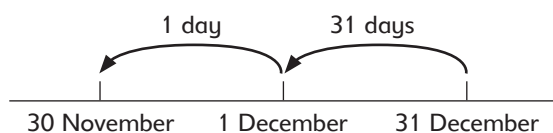
Apply

5. a. **348 days**

Read word problems carefully and identify the numbers and operations needed. Subtract 18 from the number of days in a leap year. $366 - 18 = 348$ days.

b. **29th November**

Count back 32 days from the last date of the calendar month. Use a number line to count back.



As there are 32 days left, the date must be the day before 30th November, which is 29th November.

6. **No**

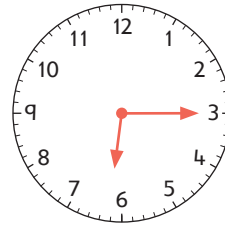
Josh is incorrect since a leap year is (usually) every 4 years and February has 29 days when the year is a leap year.

Note that there are some times when a leap year does not occur every four years and answers that acknowledge this are also correct. For example: years that are divisible by 100 are not leap years unless they are also divisible by 400. The year 1900 was not a leap year, but the year 2000 was.

Telling the time (pages 52–53)

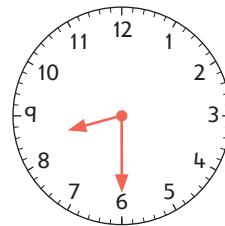
Practise

1. a.

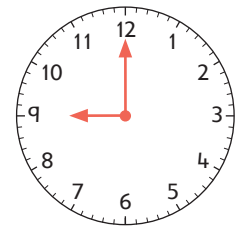


Count around the clock face in periods of 5 minutes to find the minutes. Quarter past = 15 minutes, so the longer (minute) hand points at 3. The hour hand is the shorter hand and points to 6.

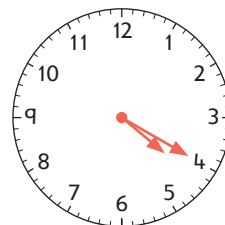
b.



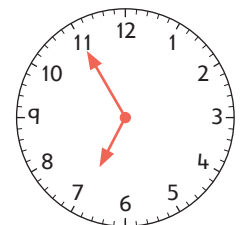
c.



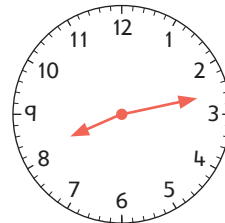
d.



e.



f.



2. a. **half past 6 (six)**

Read the hour: 6 hours. Read the minutes: 30 minutes, which is the same as half an hour. Recombine the hours and minutes and put the time in words.

b. **quarter past 11 (eleven)**

c. **12 (twelve) minutes past 10 (ten)**

Extend

3. a. **6:25 p.m.**

The time on the clock is 25 minutes past 6 in the evening. Change this to 12-hour time. It is in the evening, which is after midday, so use p.m. The first number is the previous o'clock: 6. The second number is the minutes past the previous o'clock: 25. Write these in order with a separator and using p.m.

b. **10:55 a.m.**

c. **3:18 p.m.**

4. a. 07:18

The time on the clock is 18 minutes past 7 in the morning. Change this to 24-hour time. Using 24-hour time means every hour through a whole day has its own number. Because this is in the morning, it must be the first 7 o'clock and not 7 o'clock in the evening. The first number uses two digits: 07. The second number is the minutes past the previous o'clock: 18. Write these in order with a separator, checking there are always four digits.

b. 16:35

The time on the clock is 35 minutes past 4 in the afternoon. Because this is in the afternoon, it must be the second 4 o'clock and not 4 o'clock in the early morning. The first number uses two digits: 16 (12 + 4). The second number is the minutes past the previous o'clock: 35. Write these in order with a separator, checking there are always four digits.

c. 21:56

Apply

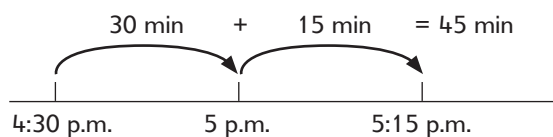
5. Clock D is incorrect because 00:00 is midnight rather than midday.

Time problems (pages 54–55)

Practise

1. a. 45 min

Read the clock faces. Clock 1 shows half past 4 in the afternoon, which is 4:30 p.m. Clock 2 shows quarter past 5 in the afternoon, which is 5:15 p.m. Calculate the difference between these two times using a number line.



- b. 2 hr 10 min
c. 2 hr 15 min
d. 3 hr 25 min

2. a. <

Convert the minutes to seconds to compare them. 1 min = 60 sec so 2 min = 60 × 2 = 120 sec. Read the statement and fill in the correct symbol. 60 sec is less than 120 sec (2 min).

- b. < c. = d. > e. < f. >

Extend

3. a.



b.

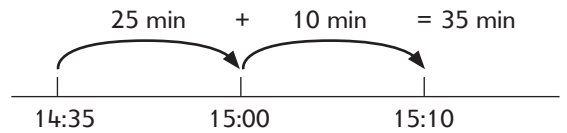


4. a. 12.10 p.m.

Oscar has paid £1 so he has 45 min. 11:25 a.m. + 45 min is 12:10 p.m.

b. £1

Calculate the amount of time Meg has parked the car for. 14:35 to 15:10 is 35 min.



Read the table to find out how much Meg must pay for 35 min. 35 min is more than 21 min but less than 45 min, so she must pay £1.

Apply

5. No

Tim is incorrect. This is too late/after he wants to eat. Tim should put the pizza in the oven at 18:12.

6. Saturday

On Monday, Taj practises for 12 min. (17:09 + 12 min = 17:21). On Wednesday, Taj practises for 13 min. (18:49 + 13 min = 19:02). On Saturday, Taj practises for 38 min. (10:45 + 38 min = 11:23). Taj practises for the longest on Saturday.

Money problems (pages 56–57)

Practise

1. a. £2 (or 200p)

Count the number of 20p coins. 5 × 20p = 100p or £1. Count the number of 50p coins. 2 × 50p = 100p or £1. Add the totals. £1 + £1 = £2.

- b. £4 c. £3 d. £1

2. a. <

Calculate the amount of money shown on each side of the number statement. The left side shows 4 coins. Each coin is equal to 10p. 4 × 10p = 40p. The right side shows 1 coin. The value of the coin is £1. 40p is less than £1, so use the < symbol.

- b. < c. = d. >
e. = f. >

Extend

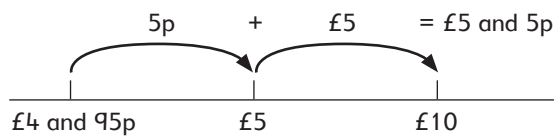
3. a. £4

Identify the whole amount of the bar model. The whole is equal to £12. Identify the known part. The known part is equal to £8. Subtract the known part from the whole to calculate the missing part. $£12 - £8 = £4$.

b. £5

4. a. Cost: £4 and 95p, Change: £5 and 5p

Calculate the total cost by adding together the price of each item. Bucket and spade = £3 and 75p. Bottle of water = £1 and 20p. $£3 \text{ and } 75p + £1 \text{ and } 20p = £4 \text{ and } 95p$. Calculate the change by finding the difference between the total cost and £10. Use a number line.



b. Cost: £2 and 85p, Change: £7 and 15p

Apply

5. a. £27

Read the table to find the cost of the tickets. Each adult ticket costs £12. Each child ticket costs £7 and 50p. Calculate the cost of 1 adult and 2 child tickets. Add the cost of two child tickets first. $£7 \text{ and } 50p + £7 \text{ and } 50p = £15$. Now add the cost of 1 adult ticket to the total cost of 2 child tickets. $£12 + £15 = £27$.

b. £9

Calculate the cost of buying 2 adult and 2 child tickets individually. 2 adult tickets = $£12 + £12 = £24$. 2 child tickets = $£7 \text{ and } 50p + £7 \text{ and } 50p = £15$. $£24 + £15 = £39$. Find the difference between buying 2 adult and 2 child tickets individually compared with buying a group ticket. $£39 - £30 = £9$.

Lines (pages 58–59)

Practise

1. There are 8 vertical lines and 6 horizontal lines.

2. a. (H) O T

b. (Z) O O

c. B U (N)

d. (F) O X

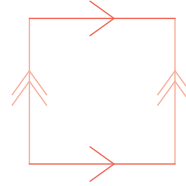
3.

Vertical line	Horizontal line	Parallel lines	Perpendicular lines

Any examples of parallel or perpendicular lines not covered here are acceptable.

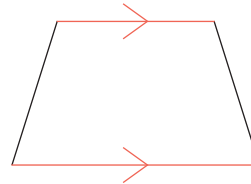
Extend

4. a. 2

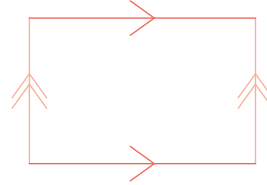


The opposite sides of the square are parallel. There are two pairs of parallel lines.

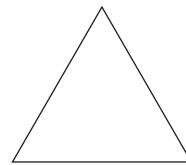
b. 1



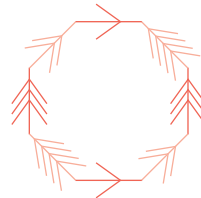
c. 2



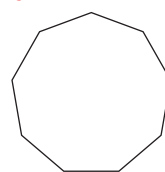
d. 0



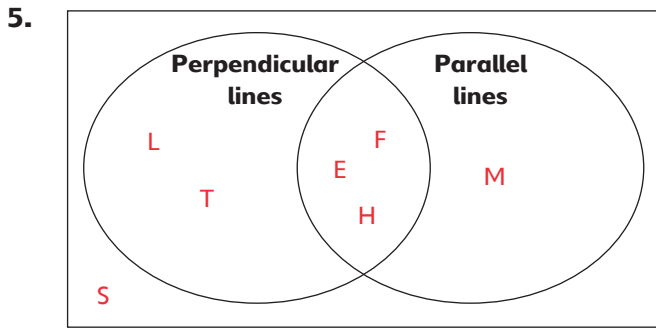
e. 4



f. 0



Apply



Look at the labels on the Venn diagram. The left-hand oval is for all the letters that have perpendicular lines. The right-hand oval is for all the letters that have parallel lines. The overlapping part of the two ovals is for the letters that have both parallel and perpendicular lines. The part outside both ovals but inside the rectangle is for the letters that have neither parallel nor perpendicular lines. Look at each letter and decide where to place it on the Venn diagram. Note that S does not have either perpendicular or parallel lines, so it is placed outside the ovals.

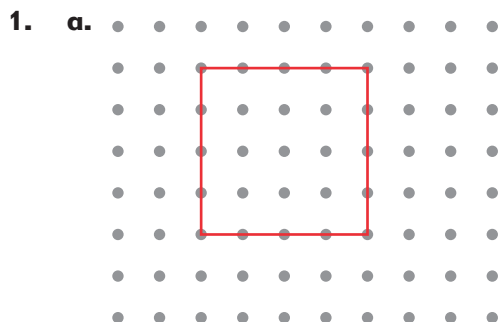
6.

	Parallel lines	No parallel lines
Perpendicular lines		
No perpendicular lines		

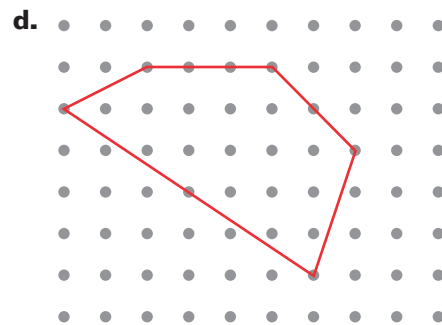
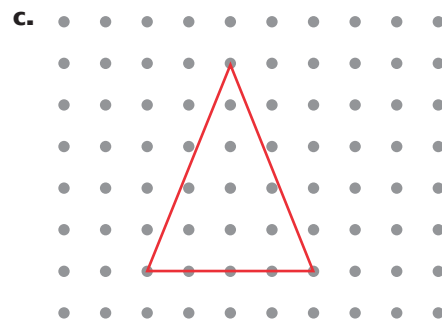
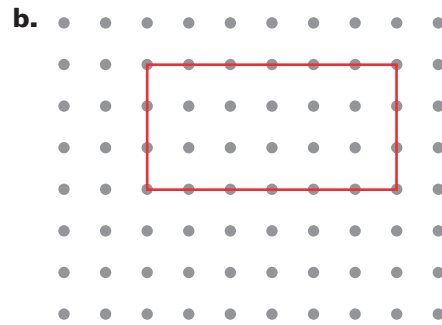
Look at each shape and think about its properties. The square has parallel lines and perpendicular lines. The right-angled triangle has perpendicular lines. The trapezium has parallel lines. The circle has no perpendicular lines and no parallel lines. Use this information to put the titles in the correct place.

2D shapes (pages 60–61)

Practise



Note that all shapes in **Question 1** may vary in size and placement provided the drawing is of the type of shape named. Shapes may be regular or irregular (except in the case of the square, which is a regular rectangle).



2. a. 8 8
Count the number of vertices (corners) and sides. It may be helpful to mark each vertex (corner) and side while counting.
- b. 4 4 c. 4 4

Extend

3. a. pentagon
This is an irregular shape as the sides are not equal. Count the number of sides and vertices and think about the name for a shape with that number of sides. This is a pentagon because it has five sides.
- b. hexagon c. octagon
4. F. Because it is an octagon and it is in the section labelled 'Not octagons'.
Read the labels on the sorting diagram. An octagon has eight sides and eight vertices. Count the number of sides and vertices for each shape

to decide if it is an octagon or not. Shapes A, B and C all have 8 sides and 8 vertices. They are octagons, so they are in the correct place. Shape D has 9 sides and 9 vertices. It is not an octagon, so is in the correct place. Shape E has 7 sides and 7 vertices. It is not an octagon, so is in the correct place. Shape F has 8 sides and 8 vertices. It is an octagon, so it is **not** in the correct place.

Apply

5. **octagon**

Count the number of sides and vertices for each shape. Shape 1 has 8 vertices and 8 sides. It is an octagon. Shape 2 has 5 vertices and 5 sides. It is a pentagon. Shape 3 has 6 vertices and 6 sides. It is a hexagon. Syed put the shapes in order from smallest number of sides to largest number of sides. The octagon will come last.

6. A polygon is a 2D shape with straight sides. A circle has a curved side, so it is not a polygon.

3D shapes (pages 62–63)

Practise

1. a. cube b. cone c. cylinder
 d. cuboid e. sphere
 f. triangle-based pyramid
2. a. 6 12 8 b. 4 6 4 c. 5 9 6

Extend

3. a. **square-based pyramid**
 Count the number of faces. There are 5 faces in total. Identify each face name. There are 4 triangle faces and 1 square face. A square-based pyramid has 5 faces (4 triangle faces and 1 square face).
- b. **pentagonal prism**

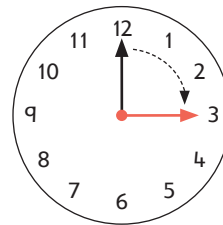
Apply

4. **12** spaghetti strands and **8** marshmallows
 A cube has 6 faces, 12 edges and 8 vertices. The marshmallows represent the vertices. 8 marshmallows will be needed. The spaghetti strands represent the edges. 12 spaghetti strands will be needed.
5. **No**
 A prism has a cross-section that is the same all along its length. Shapes B, D and E are not prisms.

Turns (pages 64–65)

Practise

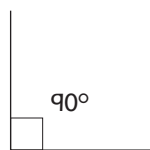
1. a. **3**
 The hand on the spinner is pointing to 12 at the beginning. A quarter turn is a 90-degree turn. Clockwise is in the same direction as the hands of a clock move round. The hand will be pointing to 3.



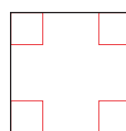
- b. **6** c. **9**
2. **A C E**
 A right angle is a 90-degree angle, which is a quarter turn. Angles A, C, E are all right angles.
3. a. **1** b. **2** c. **3** d. **4**

Extend

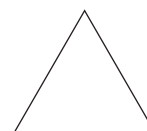
4. a. =
 A right angle is a 90° angle, which is a quarter turn. The symbol < means 'less than', the symbol > means 'greater than' and the symbol = means 'equal to'.
- b. > c. < d. = e. = f. =
5. Only right angles: **A F**
 Some right angles: **D**
 No right angles: **B C E**
 A right angle is a 90° angle, which is a quarter turn. A square symbol is used to show a right angle.



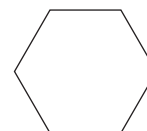
Mark up the right angles on each shape.



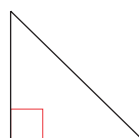
A



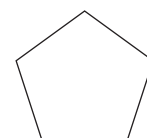
B



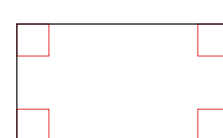
C



D



E



F

Now write the letters in the correct places in the table.

Apply

6. a. 3 b. 2 c. 1 d. 3

Tables (pages 66–67)

Practise

1. a.

Number of goals	Tally	Frequency
0		3
1		12
2		7
3		2
4		1

Make a tally for each number of goals. Count the tally to complete the frequency.

- b. 12 c. 1 d. 1
e. 5

Read the tally chart to find out in how many matches they score 1 goal (12 matches).
Read the tally chart to find out in how many matches they score 2 goals (7 matches).
Calculate the difference between the numbers by doing a subtraction calculation. $12 \text{ matches} - 7 \text{ matches} = 5 \text{ matches}$.

Extend

2. a. 56

Calculate the difference between the number of children who swim in Frogs and the number of children who swim in Tadpoles by doing a subtraction calculation. $234 - 178 = 56$.

- b. 42

Find the label for Tadpoles, which is the first column. Read the number of children who swim in Tadpoles (178). Subtract 178 from 220 (the total number of spaces). $220 - 178 = 42$.

3. a. 620

Read the label for each column of the table. Find Sunday, which is the last column. Add the number of adults (345) and number of children (275) together. $345 + 275 = 620$.

- b. 137

Read the label for each column of the table. Find Saturday, which is the second column. Subtract the number of adults (268) from the total (405). $405 - 268 = 137$.

Apply

- 4.

	Morning	Afternoon
Wren	6	12
Robin	3	1
Sparrow	12	3
Blackbird	2	6
Starling	2	3
Total	25	25

- a. 2

Calculate the number of starlings that visited the bird table in the morning. 1 fewer starlings than robins visited the bird table in the morning. So, $3 - 1 = 2$. This information can also be used to calculate the total number of blackbirds that visited the bird table in the morning. A total of 25 birds visited the bird table in the morning. Add all the birds that visited the bird table: $6 + 3 + 12 + 2 = 23$. Subtract 23 from 25. $25 - 23 = 2$.

- b. 12

Calculate the number of wrens that visited the bird table. Two times as many wrens visited the bird table in the afternoon as in the morning. $6 \times 2 = 12$.

- c. 3

Calculate the number of sparrows that visited the bird table in the afternoon. This is a quarter of the number of sparrows that visited the bird table in the morning. $12 \div 4 = 3$.

- d. 1

Calculate the number of robins that visited the bird table in the afternoon. This is a third of the number of robins that visited the bird table in the morning. $3 \div 3 = 1$. This information can also be used to calculate the total number of birds that visited the bird table in the afternoon. $12 + 1 + 3 + 6 + 3 = 25$.

Bar charts (pages 68–69)

Practise

1. a. 4

Read the horizontal axis to find the team: Snakes. Draw a line across the top of the bar to the vertical axis. Read the scale on the vertical axis. The bar is level with 4.

- b. 7

Read the horizontal axis to find the team: Tigers. Draw a line across the top of the bar to the vertical axis. Read the scale on the

vertical axis. The bar is half-way between 6 and 8. The Tigers have won 7 tournaments.

c. **Eagles**

d. **4**

e. **5**

Read the bar for the Tigers (7). Read the bar for the Lions (2). Subtract 2 from 7 to calculate how many more tournaments the Tigers have won. $7 - 2 = 5$.

f. **29**

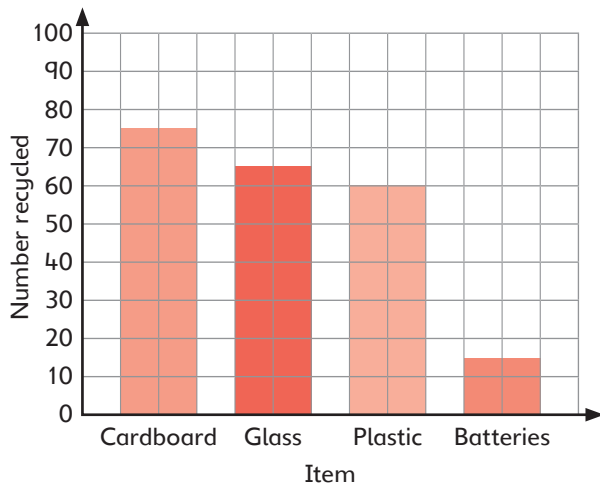
Read the bar for each team: Eagles (11), Tigers (7), Snakes (4), Bears (3), Lions (2), Wolves (2). Add all the bars together: $11 + 7 + 4 + 3 + 2 + 2 = 29$.

Extend

2. a. **10** b. **20** c. **20** d. **210**

Apply

3.



a. **60 plastic items were recycled**

Read the bar chart to find out how many batteries were recycled. Draw a line at the top of the bar across to the vertical axis. It is half-way between 10 and 20, so 15 batteries were recycled. Subtract the number of batteries recycled from the total number of batteries and plastic items recycled. $75 - 15 = 60$. Draw the bar to show 60 plastic items were recycled.

b. **75 cardboard items were recycled**

Multiply the number of batteries by 5. $15 \times 5 = 75$. Draw the bar to show 75 cardboard items were recycled.

c. **65 glass items were recycled**

Add together the batteries, cardboard and plastic, then subtract the result from 215. $15 + 60 + 75 = 150$. $215 - 150 = 65$. Draw the bar to show 65 glass items were recycled.

Pictograms (pages 70–71)

Practise

1. a. **£20**

Read the key. Each coin symbol is equal to £4. Find week 1 on the pictogram. Count the number of symbols shown for week 1. There are 5 coin symbols. Multiply 5 by 4 because each symbol is equal to £4. $5 \times £4 = £20$.

b. **Week 5**

c. **£12**

Calculate how much money Kate earned in week 2. There are 7 symbols. $7 \times £4 = £28$. Calculate how much money Kate earned in week 6. There are 4 symbols. $4 \times £4 = £16$. Calculate the difference by subtracting £16 from £28. $£28 - £16 = £12$.

d. **£4**

Calculate how much money Kate earned in week 3. There are 4 symbols. $4 \times £4 = £16$. Find $\frac{1}{4}$ of £16. $£16 \div 4 = £4$.

e. **£26**

Calculate how much money Kate earned in week 6. There are 4 symbols. $4 \times £4 = £16$. Add £10 to the amount Kate earned. $£16 + £10 = £26$.

f. **£6**

Calculate how much money Kate earned in week 5. There are 11 symbols. $11 \times £4 = £44$. Subtract £44 from £50. $£50 - £44 = £6$.

Extend

2. a. **600**

Read the key, Each whole symbol is equal to 50. Find 'Castle' on the pictogram. Count the number of whole symbols. There are 12 whole symbols. $12 \times 50 = 600$.

b. **475**

Find 'Zoo' on the pictogram. Count the number of whole symbols and half symbols shown for 'Zoo'. There are 16 whole symbols and 1 half symbol. $16 \times 50 = 800$. $\frac{1}{2}$ of one whole symbol = 25. Add 25 to the 16 whole symbols (800). $800 + 25 = 825$. Find 'Museum' on the pictogram and count the number of symbols. There are 7 whole symbols. $7 \times 50 = 350$. $825 - 350 = 475$.

c. **90**

Find 'Bridge' on the pictogram. Count the number of symbols for 'Bridge'. There are 18 whole symbols. $18 \times 50 = 900$. Calculate $\frac{1}{10}$ of 900. $900 \div 10 = 90$.

- d. Lucy is not correct because each symbol represents 50, not 1. She must multiply 7 symbols by 50. 350 people visited the museum.

Apply

3. a. 650 tiles
Read the key. Each whole symbol is equal to 100. Count the number of whole symbols and half symbols shown for 'Factory 1'. There are 6 whole symbols and 1 half symbol. $6 \times 100 = 600$. $\frac{1}{2}$ of one whole symbol = 50. Add 50 to the 6 whole symbols (600). $600 + 50 = 650$ tiles.
- b. 175 tiles
Factory 1 produced 650 tiles. Factory 2 produced 825 tiles. Subtract 650 tiles from 825 tiles. $825 - 650 = 175$ tiles.
- c. 1950 tiles
Factory 1 produced 650 tiles. Factory 2 produced 825 tiles. Factory 3 produced 475 tiles. $650 + 825 + 475 = 1950$ tiles.
- d. 175 tiles
Factory 2 produced 825 tiles. Subtract 825 from 1000. $1000 - 825 = 175$ tiles.

Final practice (pages 72–76)

1. 421, 412, 241, 214, 142, 124
Begin by placing the largest number card in the hundreds column, and the other digits in order from largest to smallest.

H	T	O
4	2	1

Now keep the digit in the hundreds column the same and swap the tens and ones digits.

H	T	O
4	1	2

Move the next largest number card to the hundreds column, and put the other digits in order from largest to smallest.

H	T	O
2	4	1

Now keep the digit in the hundreds column the same and swap the tens and ones digits.

H	T	O
2	1	4

Move the next largest number card to the hundreds column, and put the other digits in order from largest to smallest.

H	T	O
1	4	2

Now keep the digit in the hundreds column the same and swap the tens and ones digits.

H	T	O
1	2	4

Award 1 mark for four correct answers. Award 2 marks for six correct answers. Maximum 2 marks.

2. (421) (301) (401)

Read the number statement. 453 is greater than a 'missing number'. Look at the place value of each digit and choose all the numbers that are less than 453.

H	T	O
4	5	3
4	2	1
5	3	4
3	0	1
4	0	1
4	6	8
4	8	9
4	5	5

Yes, because it has 4 hundreds and 2 tens.

Yes, because it has 3 hundreds.

Yes, because it has 4 hundreds and 0 tens.

Award 1 mark for three correct answers.

3. (No)

Jenny's bus is number 317. The number 317 is made up of 3 hundreds, 1 ten and 7 ones. The number 317 is written as three hundred and seventeen. or Jenny has written down the number three hundred and seventy. This is 3 hundreds, 7 tens and 0 ones. It is written as 370, which is not the number written on her bus.

Answers should explain the difference between the numbers 317 and 370 in terms of their words, digits or numerical value. Award 1 mark for a correct explanation.

4. a. 801

Use an expanded or formal column method to add the two numbers. Begin with the ones, then the tens, then the hundreds. $6 + 5 = 11$, so exchange 10 ones for 1 ten. $9 + 0 + 1 = 10$,

so exchange 10 tens for 1 hundred. $4 + 3 + 1 = 8$. $800 + 0 + 1 = 801$. Award 1 mark for the correct answer.

b. 362

Use an expanded or formal column method to subtract the two numbers. Begin with the ones, then the tens, then the hundreds. $5 - 3 = 2$. Exchange 1 hundred for 10 tens to complete the next step of the calculation. $14 - 8 = 6$. $5 - 2 = 3$. $300 + 60 + 2 = 362$. Award 1 mark for the correct answer.

5. a. $407 + 232 = 639$

Work through the column calculation from right to left. $7 + 2 = 9$ and there are no exchanged digits. To make 3, nothing needs to be added to 3 in the tens column. The missing digit is 0. Award 1 mark for the correct answer.

b. $154 + 218 = 372$

Use the method used in **Question 5a**. Award 1 mark for the correct answer.

c. $645 - 263 = 382$

To find the missing digit, use the inverse operation on the tens column. $8 + 6 = 14$. The missing digit is 4. One hundred will have been exchanged during the calculation to make the 10 tens. This can be seen in the hundreds column, which has an extra hundred that would normally be crossed out as the calculation is worked through. Award 1 mark for the correct answer.

6. a. 462m

Add $228\text{m} + 234\text{m}$ to find the combined height. $228\text{m} + 234\text{m} = 462\text{m}$. Award 1 mark for the correct answer.

b. 6m

Subtract 228m from 234m . $234\text{m} - 228\text{m} = 6\text{m}$. Award 1 mark for the correct answer.

7. 8

Add the number of balloons in the pack together: $6 + 4 = 10$. Divide the number of balloons Kwame needs (80) by 10. $80 \div 10 = 8$. Award 1 mark for a correct method that would lead to the correct answer. Award 2 marks for the correct answer. Maximum 2 marks.

8. a. $53 \times 3 = 159$

Use the inverse operation on the ones digit. $9 \div 3 = 3$. The missing digit is 3. Complete the column calculation to check that the calculation is correct. Award 1 mark for the correct digit.

b. $37 \times 4 = 148$

Think about multiples of 4 that end in 8. $4 \times 2 = 8$ or $7 \times 4 = 28$. Try the calculation with 32. It will not work as $30 \times 4 = 120$. Try the calculation with 37. This does work. Fill in any remaining missing digits. Award 1 mark for the correct digit.

c. $60 \times 8 = 480$

Use the method used in **Question 8b**. Award 1 mark for one correct digit. Award 2 marks for two correct digits. Maximum 2 marks.

d. $24 \times 8 = 192$

Use the method used in **Question 8b**. Award 1 mark for one correct digit. Award 2 marks for two correct digits. Award 3 marks for three correct digits. Maximum 3 marks.

9. 82

Read word problems carefully and identify the numbers and operations needed. Multiply 16 bags by 5 apples in each bag. Add the remainder of 2 to find the total number of apples. $16 \times 5 = 80$. $80 + 2 = 82$. Award 1 mark for a correct method that would lead to the correct answer. Award 2 marks for the correct answer. Maximum 2 marks.

10. $\frac{4}{5} = \frac{8}{10}$

Count the shaded bars in the bar model. 4 out of 5 bars are shaded in the top row. This is equivalent to 8 out of 10 shaded bars in the bottom row. Award 1 mark for one correct answer. Award 2 marks for two correct answers. Maximum 2 marks.

11. Alex

Because 5 out of 5 is equal to one whole and $\frac{5}{5}$ is not a unit fraction.

Identify the properties of the fractions. $\frac{1}{3}$ is a unit fraction and is less than one whole, so it would fit in the top left box. $\frac{8}{1}$ is not a unit fraction, but it is more than one whole (it is equal to 8). It would not fit anywhere on the sorting diagram. $\frac{5}{5}$ is not a unit fraction and it is equal to one whole, so it would fit in the white box. Award 1 mark for identifying $\frac{1}{3}$ as a unit fraction. Award 2 marks for the correct name and explanation. Maximum 2 marks.

12. a. $\frac{6}{12}$ (or $\frac{1}{2}$)

Count the number of pentagons. There are 6. Count the total number of shapes. There are 12. Write 6 out of 12 as a fraction. Award 1 mark for the correct answer.

b. $\frac{2}{12}$ (or $\frac{1}{6}$)

Use the method used in **Question 12a**.

Award 1 mark for the correct answer.

c. $\frac{4}{12}$ (or $\frac{1}{3}$)

Use the method used in **Question 12a**.

Award 1 mark for the correct answer.

13. 150 millilitres

Read the scale on the jug. The water is level with 500ml. Calculate $\frac{4}{10}$ of 500ml. $\frac{1}{10}$ of 500ml = 50ml. $\frac{4}{10}$ of 500ml = 50ml \times 4 = 200ml. Subtract 200ml from 500ml. 500ml - 200ml = 300ml. Subtract 150ml from 300ml. 300ml - 150ml = 150ml. Award 1 mark for a correct method that would lead to the correct answer. Award 2 marks for the correct answer. Maximum 2 marks.

14. a. 220cm

Add the lengths. 125cm + 95cm = 220cm.

Award 1 mark for the correct answer.

b. 80cm

1m = 100cm. 3m = 100cm \times 3 = 300cm.

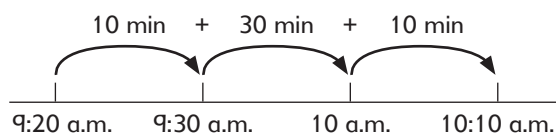
Subtract 220cm from 300cm. 300cm - 220cm = 80cm. Award 1 mark for the correct answer.

15. £4 and 50p

Find the total cost: 85p + £4 and 65p = £5 and 50p. Find the change: £10 - £5 and 50p = £4 and 50p. Award 1 mark for a correct method that would lead to the correct answer. Award 2 marks for the correct answer. Maximum 2 marks.

16. a. 10:10 a.m. (or 10:10)

Add 50 min to the start time. It may be helpful to use a number line. 9:20 a.m. + 10 min will be 9:30 a.m. 9:30 a.m. + 30 min will be 10 a.m. 10 a.m. + 10 min will be 10:10 a.m.



Accept answers in any form. Award 1 mark for the correct answer.

b. 10:20 (or 10:20 a.m.)

Use the method used in **Question 16a**, but subtract the length of the event from the finish time. Award 1 mark for the correct answer.

c. 20 min

Add on from the start time to reach the finish time. 13:45 + 15 min = 14:00. 14:00 + 5 min = 14:05. 15 min + 5 min = 20 min. Award 1 mark for the correct answer.

17. 3cm

The opposite sides of the rectangle are equal in length. 5cm + 5cm = 10cm. Subtract 10cm from 16cm. 16cm - 10cm = 6cm. 6cm \div 2 = 3cm. Award 1 mark for a correct method that would lead to the correct answer. Award 2 marks for the correct answer. Maximum 2 marks.

18. a. 4

Read the horizontal axis. Find the 'Lemon' label. Draw a line at the top of the 'Lemon' bar across to the vertical axis. Read the scale on the vertical axis: 4. Award 1 mark for the correct answer.

b. 9

Use the method used in **Question 18a**.

Award 1 mark for the correct answer.

c. 4

The bar chart shows that there are 19 blackcurrant drinks and 15 orange drinks. 19 - 15 = 4. Award 1 mark for the correct answer.

d. 53

Read each bar to find the drink cartons sold for each flavour. Orange: 15. Lemon: 4. Raspberry: 9. Blackcurrant: 19. Add all the cartons together. 15 + 4 + 9 + 19 = 47. Subtract 47 from 100. 100 - 47 = 53. Award 1 mark for a correct method that would lead to the correct answer. Award 2 marks for the correct answer. Maximum 2 marks.