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CAMBRIDGE Primary Mathematics

Workbook 4

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How to use this book

This workbook provides questions for you to practise what you have learned in class. There is a unit to match each unit in your Learner's Book. Each exercise is divided into three parts:

- **Focus:** these questions help you to master the basics
- **Practice:** these questions help you to become more confident in using what you have learned
- **Challenge:** these questions will make you think very hard.

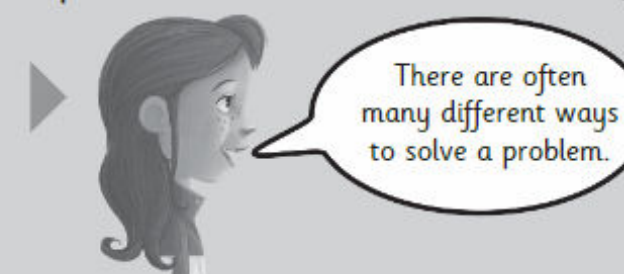
Each exercise is divided into three parts. You might not need to work on all of them. Your teacher will tell you which parts to do.

You will also find these features:

Important words that you will use. →

difference linear sequence negative number non-linear sequence rule
sequence spatial pattern square number term term-to-term rule

Step-by-step examples
showing a way to solve
a problem. →



These questions will help you
develop your skills of thinking
and working mathematically. →

Worked example 1

The numbers in this sequence increase by 30 each time.
10, 40, 70, ...

The sequence continues in the same way.
Which number in the sequence is closest to 200?

List the terms in the sequence.
The next terms in the sequence are:

10 $\xrightarrow{+30}$ 40 $\xrightarrow{+30}$ 70 $\xrightarrow{+30}$ 100 $\xrightarrow{+30}$ 130 $\xrightarrow{+30}$ 160 $\xrightarrow{+30}$ 190 $\xrightarrow{+30}$ 220

200

190 220

Work out which term is closest to 200.

Answer: 190 is closest to 200.

11 Write the missing number in this sequence.
1, 3, 6, 10, _____
Explain how you worked it out.

Thinking and Working Mathematically

There are some important skills that you will develop as you learn mathematics.

Specialising

is when I choose an example and check to see if it satisfies or does not satisfy specific mathematical criteria.

Characterising

is when I identify and describe the mathematical properties of an object.

Generalising

is when I recognise an underlying pattern by identifying many examples that satisfy the same mathematical criteria.

Classifying

is when I organise objects into groups according to their mathematical properties.

Critiquing

is when I compare and evaluate mathematical ideas, representations or solutions to identify advantages and disadvantages.

Improving

is when I refine mathematical ideas or representations to develop a more effective approach or solution.

Conjecturing

is when I form mathematical questions or ideas.

Convincing

is when I present evidence to justify or challenge a mathematical idea or solution.

1 Numbers and the number system

> 1.1 Counting and sequences

Worked example 1

The numbers in this sequence increase by 30 each time.

10, 40, 70, ...

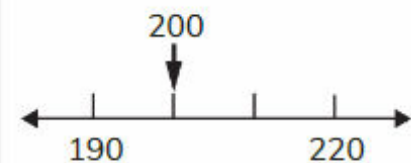
The sequence continues in the same way.

Which number in the sequence is closest to 200?

List the terms in the sequence.

The next terms in the sequence are:

10 $\xrightarrow{+30}$ 40 $\xrightarrow{+30}$ 70 $\xrightarrow{+30}$ 100 $\xrightarrow{+30}$ 130 $\xrightarrow{+30}$ 160 $\xrightarrow{+30}$ 190 $\xrightarrow{+30}$ 220



Work out which term is closest to 200.

Answer: 190 is closest to 200.

difference linear sequence negative number non-linear sequence rule
sequence spatial pattern square number term term-to-term rule

Exercise 1.1

Focus

- 1 Hassan shaded in grey these numbers on a hundred square. The numbers form a pattern.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- a What is Hassan's rule for finding the next number?

- b What is the next number in his pattern?

- 2 The sequence 10, 16, 22, ... continues in the same way. Write the next **two** numbers in the sequence.

- 3 The rule for a sequence of numbers is 'add 3' each time.

1, 4, 7, 10, 13, ...

The sequence continues in the same way.

Circle the numbers that are **not** in the sequence.

22 28 33 40

- 4 A sequence has the first term 2020 and the term-to-term rule is 'add 11'.
Write the first five terms of the sequence.

_____, _____, _____, _____, _____

- 5 Write the next four terms in these linear sequences.

a 10, 7, 4, _____, _____, _____, _____

b -9, -7, -5, _____, _____, _____, _____

c 1095, 1060, 1025, _____, _____, _____, _____

Tip

Remember that -9 is less than -7.



Practice

- 6 Here is part of a number sequence.
The numbers increase by 25 each time.

25, 50, 75, 100, 125, ...

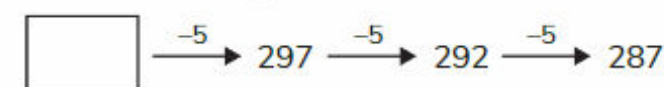
Circle all the numbers below that will be in the sequence.

355 750 835 900 995



- 7 Amy makes a number sequence.
The first term of her sequence is 1.
Her term-to-term rule is 'add 7'.
Amy says, 'If I keep adding 7, I will reach 77.'
Is Amy correct? Explain your answer.

- 8 Here is part of a number sequence.
The first number is missing.



Write the missing number.

- 9 A sequence has first term 1001 and last term 1041.
The term-to-term rule is 'add 5'.
Write down **all** the terms in the sequence.

- 10 Each number in this sequence is double the previous number.
Write the missing numbers.

_____, 3, 6, 12, 24, 48, _____

Challenge



- 11 Write the missing number in this sequence.

1, 3, 6, 10, _____

Explain how you worked it out.

Tip

Remember to
work backwards.

12 The numbers in this sequence increase by 10 each time.

4, 14, 24, ...

The sequence continues in the same way.

Write two numbers from the sequence that make a total of 68.

_____ and _____

13 Describe each of the sequences below.

- Is the sequence linear or non-linear?
- What is the first term?
- What is the term-to-term rule?
- What are the next two terms in the sequence?

a 5, 9, 13, 17, ...

b 3, 11, 18, 24, ...

c 3, 6, 12, 24, ...

Tip

You might find it useful to continue writing the terms of the sequence.



14 Write a sequence containing these numbers.

Your sequence must have at least one number between the two given numbers.

Describe the rule you use.

There could be different answers.

a 1 and 10

b 6 and 20

c 3 and 15

d 1 and 100

Tip

You could choose a linear or a non-linear sequence.

> 1.2 More on negative numbers

Worked example 2

Here is a temperature scale.



The temperature is 1° **below** freezing on a cold day.
Mark the position of this temperature on the scale with an arrow.

Each division on the number line represents 2 units.

1° below freezing is -1° and it is half way between -2 and 0 .

Answer:

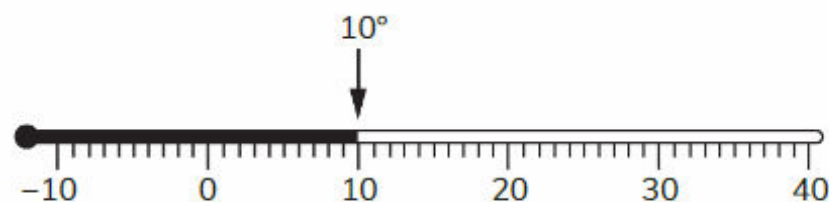


temperature zero

Exercise 1.2

Focus

- 1 Here is a thermometer. The arrow is pointing to 10°C .



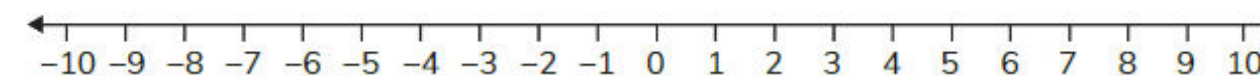
Draw an arrow on the thermometer pointing to -5°C .

- 2 Here are some temperatures.

4°C -3°C 5°C 0°C -2°C

- a Which is the warmest temperature? _____
b Which is the coldest temperature? _____

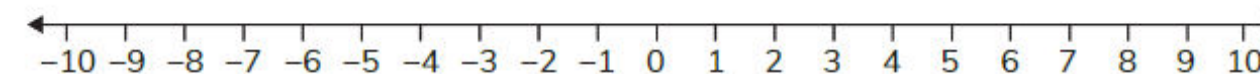
- 3 Look at the number line.



Write where you would land on the number line after these moves.

- | | | | | | | | |
|---|-------|----------|-------|---|-------|------------|-------|
| | start | count on | end | | start | count back | end |
| a | (-4) | (1) | _____ | b | (6) | (6) | _____ |
| | start | count on | end | | start | count back | end |
| c | (-5) | (3) | _____ | d | (0) | (9) | _____ |

- 4 Circle the **larger** number in each pair.
Find the difference between the two numbers.
Use the number line to help you.



- a -6 -2 Difference: _____
b -3 -1 Difference: _____
c 4 -4 Difference: _____