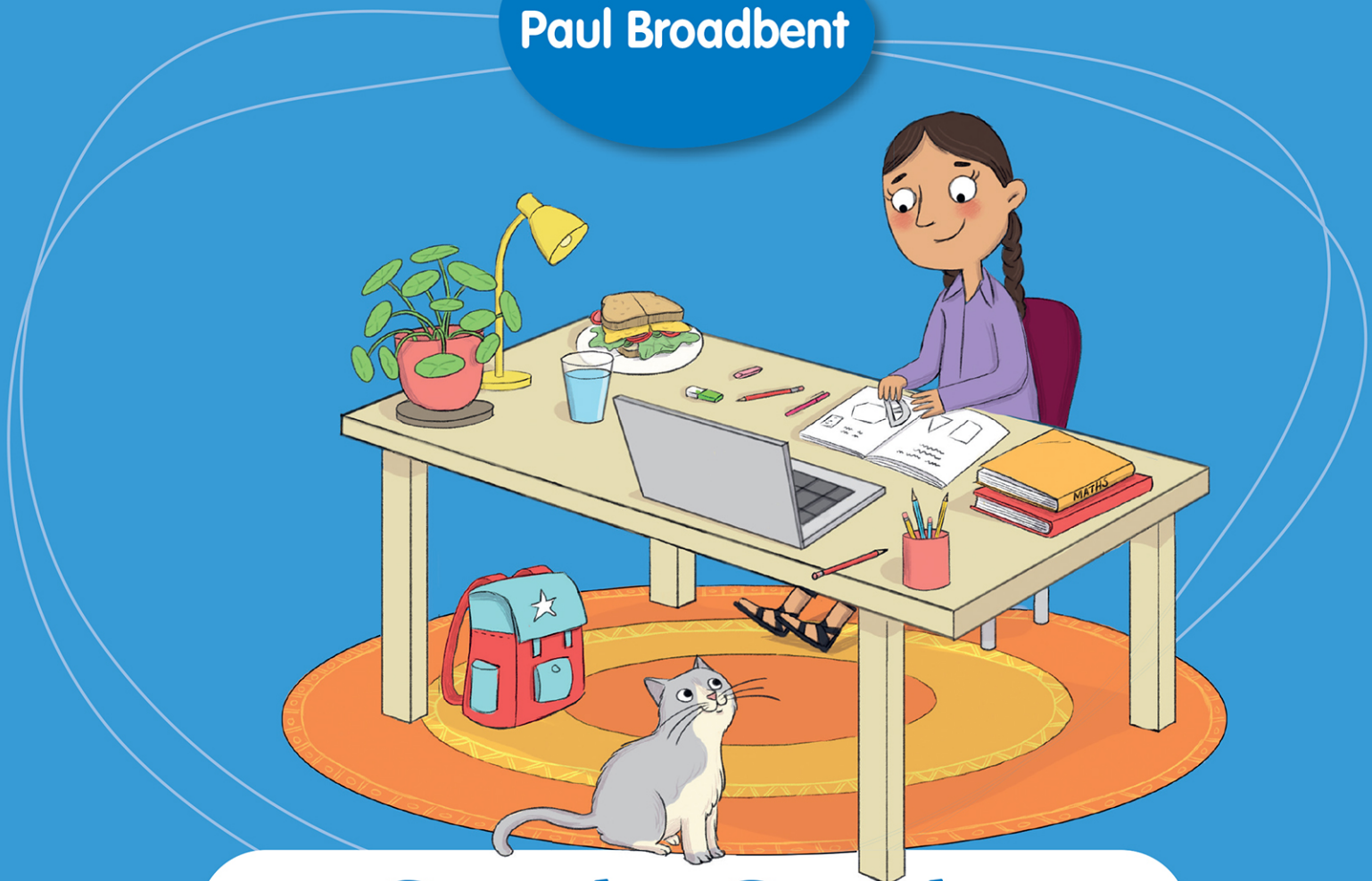
Cambridge Primary
Revise for Primary Checkpoint

Mathematics

Second Edition

Paul Broadbent



Study Guide

HODDER EDUCATION

Contents

Geometry and Measure

Statistics and Probability

What is this book about?

This Study Guide is to help you revise and practice important skills and concepts you have learnt in preparation for the Cambridge Primary Checkpoint Mathematics test. It will help you to recall key information and ideas and build your understanding about the maths topics that you have been learning during Stage 6.

The book is divided into three chapters: Number, Geometry and Measure, and Statistics and Probability. At the end of each chapter there is a 'Test your Understanding' set of questions to help you check your progress. Each chapter has a number of units which are broken down into the key topics for each unit.

Do you remember?

These are the most important pieces of information you need to know about a topic. It includes methods, facts and explanations to help you, with examples (in white boxes) for you to work through.

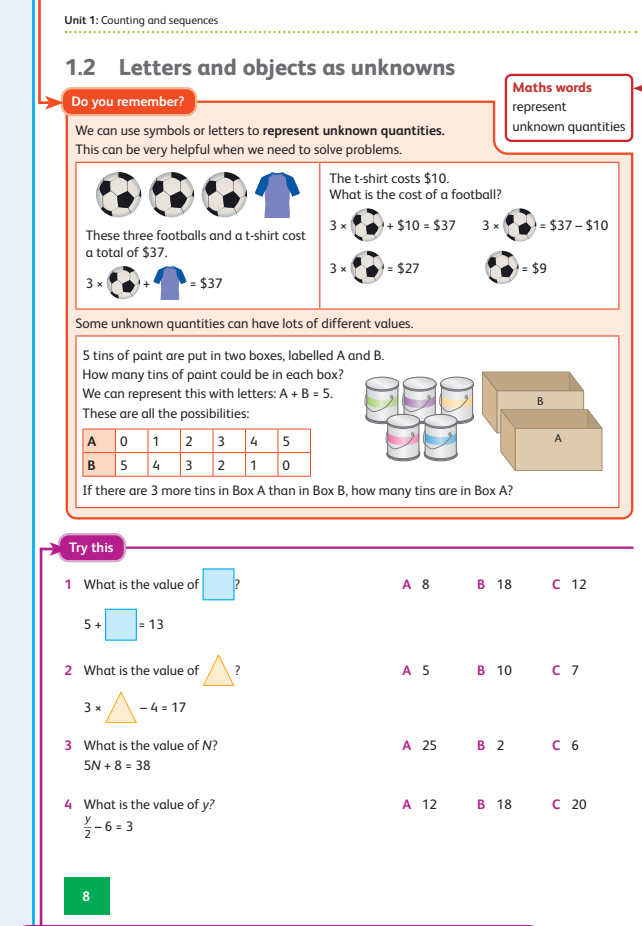
Maths words

These words relate to the area of maths that you are revising.

It is important to understand what they mean, so some of the words are also included in a glossary on pages 111–112.

Practise

Each question will help you to practise the mathematical skills and methods you need to know. Most recording of answers is on the page, with some problems and questions needing paper for the working out.



Unit 1: Counting and sequences

1.2 Letters and objects as unknowns

Do you remember?

Maths words
represent
unknown quantities

We can use symbols or letters to **represent unknown quantities.**
This can be very helpful when we need to solve problems.

These three footballs and a t-shirt cost a total of $37.

3 × ⚽ + 👕 = $37

The t-shirt costs $10.
What is the cost of a football?

3 × ⚽ + $10 = $37

3 × ⚽ = $37 – $10

3 × ⚽ = $27

⚽ = $9

Some unknown quantities can have lots of different values.

5 tins of paint are put in two boxes, labelled A and B.
How many tins of paint could be in each box?
We can represent this with letters: A + B = 5.
These are all the possibilities:

A	0	1	2	3	4	5
B	5	4	3	2	1	0

If there are 3 more tins in Box A than in Box B, how many tins are in Box A?

Try this

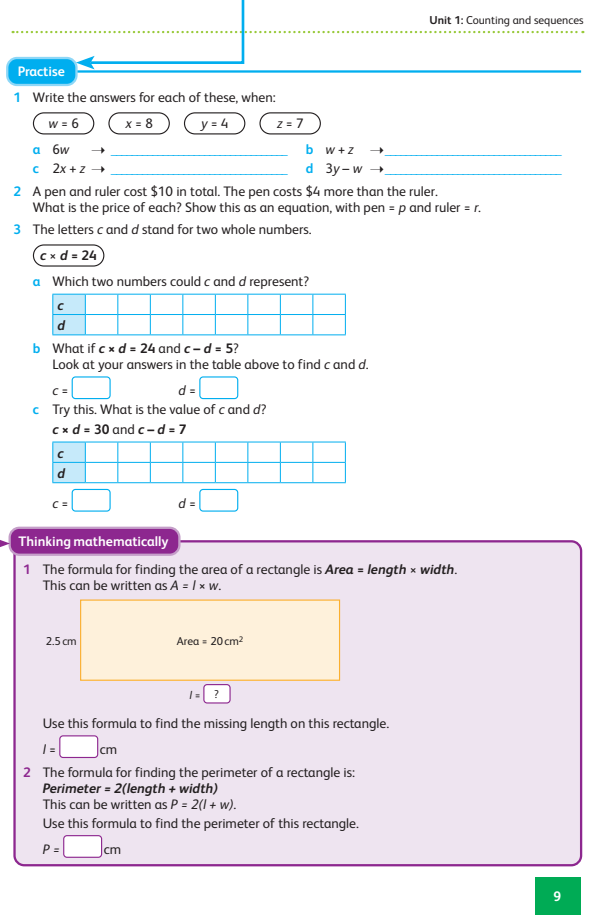
1 What is the value of ☐?
5 + ☐ = 13
A 8 B 18 C 12

2 What is the value of △?
3 × △ – 4 = 17
A 5 B 10 C 7

3 What is the value of *N*?
5*N* + 8 = 38
A 25 B 2 C 6

4 What is the value of *y*?
$\frac{y}{2} - 6 = 3$
A 12 B 18 C 20

8



Unit 1: Counting and sequences

Practise

1 Write the answers for each of these, when:
w = 6 *x* = 8 *y* = 4 *z* = 7
a 6*w* → _____ b *w* + *z* → _____
c 2*x* + *z* → _____ d 3*y* – *w* → _____

2 A pen and ruler cost $10 in total. The pen costs $4 more than the ruler.
What is the price of each? Show this as an equation, with pen = *p* and ruler = *r*.

3 The letters *c* and *d* stand for two whole numbers.
c × *d* = 24
a Which two numbers could *c* and *d* represent?

c									
d									

b What if *c* × *d* = 24 and *c* – *d* = 5?
Look at your answers in the table above to find *c* and *d*.
c = ☐ *d* = ☐
c Try this. What is the value of *c* and *d*?
c × *d* = 30 and *c* – *d* = 7

c									
d									

c = ☐ *d* = ☐

Thinking mathematically

1 The formula for finding the area of a rectangle is ***Area = length × width***.
This can be written as *A* = *l* × *w*.

Use this formula to find the missing length on this rectangle.
l = ☐ cm

2 The formula for finding the perimeter of a rectangle is:
Perimeter = 2(length + width)
This can be written as *P* = 2(*l* + *w*).
Use this formula to find the perimeter of this rectangle.
P = ☐ cm

9

Try this

This has four multiple choice questions related to the 'Do you remember?' section. It is a quick warm-up and also checks you have understood the topic being covered.

Thinking mathematically

For these more challenging activities, you will need to use your reasoning and problem solving skills. They often involve several steps to solve them and you may need to use extra paper to record your working.

Unit 1 Counting and sequences

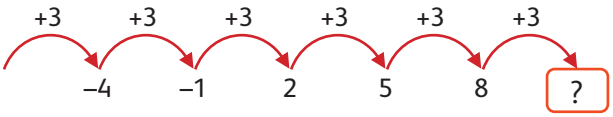
1.1 Number sequences

Maths words
sequence
pattern
term
difference
negative numbers

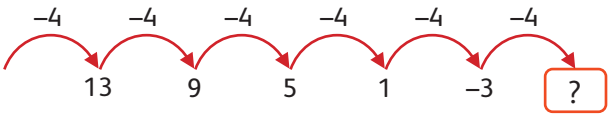
Do you remember?

A number **sequence** is a list of numbers that follow a **pattern**.
Each number in the sequence is called a **term**.
You can often find the pattern or rule to work out the next term in a sequence by looking at the **difference** between the numbers.

These sequences include **negative numbers**. What is the next number in each of them?



The pattern is **+3**.



The pattern is **−4**.

This sequence includes decimal fractions.
Try counting on and back to work out the missing number.

0.35 0.7 1.05 [?] 1.75 2.1

Try this

1 What is the missing number in this sequence?
A 4 B 3 C 5

[−9], [−5], [−1], [ ], [7], [11]

2 What is the next number in this sequence?
A 16.6 B 16.1 C 17.1

[19.6], [19.1], [18.6], [18.1], [17.6], [ ]

3 What is the missing number in this sequence?
A 4 B 6 C 5

[−27], [−16], [−5], [ ], [17], [28]

4 What is the next number in this sequence?
A $\frac{1}{2}$ B $-\frac{1}{2}$ C $-\frac{3}{4}$

[$\frac{3}{4}$], [$\frac{1}{2}$], [$\frac{1}{4}$], [0], [$-\frac{1}{4}$], [ ]

Practise

1 Write the pattern or rule for each sequence.

a −6 −1 4 9 14 The rule is _____.

b 20 14 8 2 −4 The rule is _____.

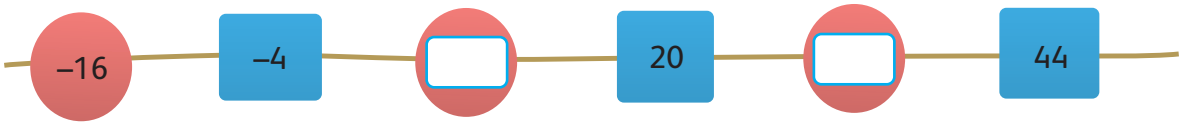
c 11 7 3 −1 −5 The rule is _____.

d −52 −22 8 38 68 The rule is _____.

e 1.2 0.7 0.2 −0.3 −0.8 The rule is _____.

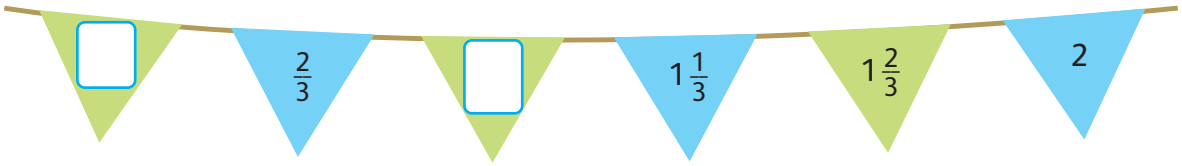
2 Write the missing numbers in each sequence.

a

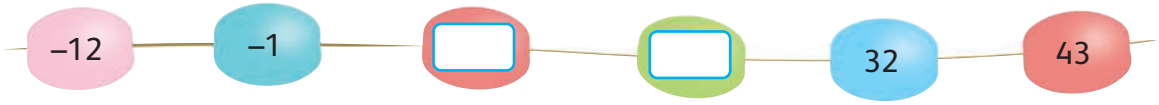


b

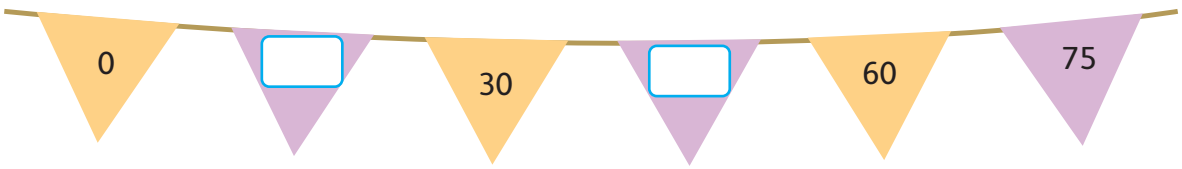
c



d



e



3 Write the tenth term for each of these sequences.

a

Position	Term
1	2
2	4
3	6
4	8
10	

b

Position	Term
1	5
2	10
3	15
4	20
10	

c

Position	Term
1	9
2	18
3	27
4	36
10	

Thinking mathematically

Sequence Rule Box

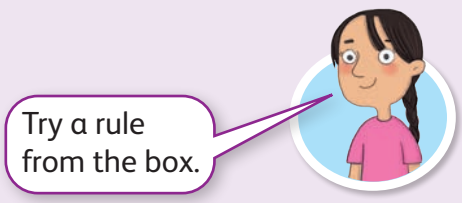
+8 –18 +2.5 –10.2 +140 –60 +0.6 –8.5

1 The two end numbers of each sequence are given.
Work out the rule for each and complete them.

a 8 ☐ ☐ ☐ ☐ 11

b 25 ☐ ☐ ☐ ☐ –65

c 105 ☐ ☐ ☐ ☐ 54



2 Make up your own sequences using rules from the Sequence Rule Box.

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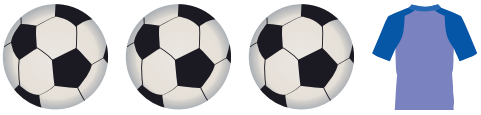

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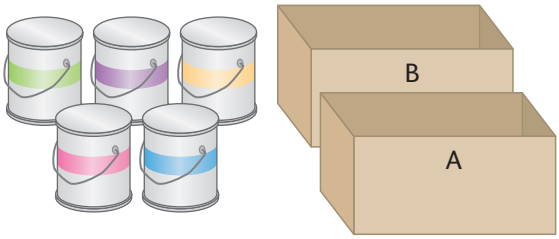

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If there are 3 more tins in Box A than in Box B, how many tins are in Box A?

Try this

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5 + □ = 13

A 8 B 18 C 12

2 What is the value of △?

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A 5 B 10 C 7

3 What is the value of N?

$5N + 8 = 38$

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Practise

1 Write the answers for each of these, when:

$w = 6$ $x = 8$ $y = 4$ $z = 7$

a $6w \rightarrow$ _____ **b** $w + z \rightarrow$ _____

c $2x + z \rightarrow$ _____ **d** $3y - w \rightarrow$ _____

2 A pen and ruler cost $10 in total. The pen costs $4 more than the ruler.
What is the price of each? Show this as an equation, with pen = p and ruler = r.

_____

_____

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$\boldsymbol{c \times d = 24}$

a Which two numbers could c and d represent?

c								
d								

b What if $\boldsymbol{c \times d = 24}$ and $\boldsymbol{c - d = 5}$?
Look at your answers in the table above to find c and d.

$c =$ ☐ $d =$ ☐

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$\boldsymbol{c \times d = 30}$ and $\boldsymbol{c - d = 7}$

c								
d								

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Thinking mathematically

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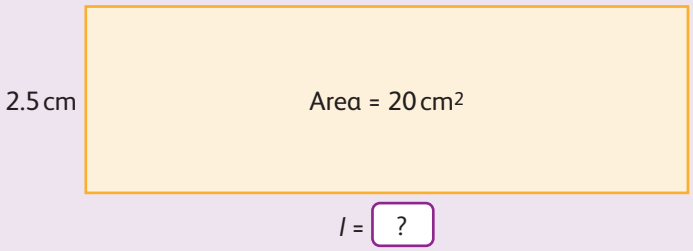


Use this formula to find the missing length on this rectangle: $l =$ ☐ cm

2 The formula for finding the perimeter of a rectangle is:
Perimeter = 2(length + width)
This can be written as $P = 2(l + w)$.
Use this formula to find the perimeter of this rectangle: $P =$ ☐ cm

Unit 2 Integers and powers

2.1 Addition and subtraction

Do you remember?

When you **add** and **subtract**, **estimate** an **approximate** answer first.

To find an approximate answer choose to **round** to the nearest 10 or 1 to make the numbers easy to calculate in your head.

What is 364.74 added to 107.49?
An approximate answer is 360 + 110 = 470

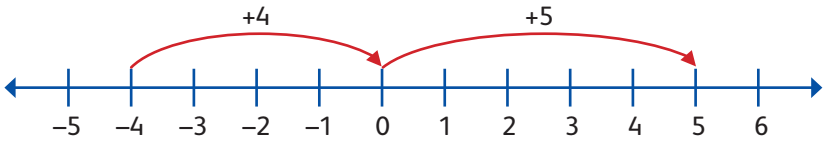
$$\begin{array}{r} 3\ 6\ {}^{1}4\ .\ {}^{1}7\ 4 \\ +\ 1\ 0\ 7\ .\ 4\ 9 \\ \hline 4\ 7\ 2\ .\ 2\ 3 \end{array}$$

What is 4.651 subtract 1.965?
An approximate answer is 5 – 2 = 3

$$\begin{array}{r} {}^{3}\not{4}\ .\ {}^{15}\not{6}\ {}^{14}\not{5}\ {}^{1}1 \\ -\ 1\ .\ 9\ 6\ 5 \\ \hline 2\ .\ 6\ 8\ 6 \end{array}$$

We can use a number line to help us calculate with **negative numbers**.

What is the **difference** between –4 and 5?



The difference between –4 and 5 is 9. –4 + 9 = 5
5 – 9 = –4

Maths words
add
subtract
estimate
approximate
round
negative numbers
difference

Try this

1 What is 295.85 subtract 87.68?
- A 206.27
- B 208.17
- C 212.23

2 What is the total of $321.49 and $653.18?
- A $974.67
- B $974.57
- C $874.67

3 Two suitcases weigh 29.47 kg and 54.28 kg. What is the difference in their weight?
- A 35.21 kg
- B 25.71 kg
- C 24.81 kg

4 What is the sum of 491.83 and 158.78?
- A 650.51
- B 649.61
- C 650.61

Practise

1 Read and answer these problems.

a What is the sum of 235.88 and 129.26? _____

b What is the total of 1.717 and 4.355? _____

c What is the difference between 56.18 and 26.35? _____

d What is 700.63 subtract 291.44? _____

2 Answer these questions.

A

3.245 kg

B

11.88 kg

C

2.915 kg

D

4.203 kg

a What is the total weight of parcels C and D? _____

b What is the difference in weight between parcels A and C? _____

c How much more does parcel D weigh than parcel A? _____

d What is the total weight of parcels A, B and D? _____

3 The digits 1, 2 and 3 are missing from each of these. Write the completed calculations.

a

$$\begin{array}{r} 4\,\square\,.\,\square\,5 \\ +\ 5\ 0\ .\ 9\ \square \\ \hline 9\ 4\ .\ 0\ 7 \end{array}$$

b

$$\begin{array}{r} 8\ 4\ .\ 0\ \square \\ -\ \square\ 9\ .\ \square\ 5 \\ \hline 6\ 4\ .\ 7\ 8 \end{array}$$

4 This table shows the minimum temperature in a city during one week in January.

Mon 10th	Tues 11th	Wed 12th	Thurs 13th	Fri 14th	Sat 15th	Sun 16th
0 °C	–3 °C	–7 °C	–4 °C	3 °C	5 °C	9 °C

a What is the difference between the highest and lowest temperatures this week? _____ °C

b What is the increase in temperature from Thursday to Friday? _____ °C

Thinking mathematically

Look at this grid of numbers.

5.093	9.839	7.283	3.281
9.719	1.307	9.473	8.161
6.527	5.717	2.907	4.693

Match the pairs of numbers that, when added, will give whole number totals.

2.2 Mental calculation strategies

Do you remember?

Maths words
add
subtract
partition

There are many ways to **add** or **subtract** numbers in your head.

- Use any facts you know to help learn others.

8 + 6 = 14
You can use this to work out these and other facts:
18 + 16 = 34 80 + 60 = 140 1.8 + 1.6 = 3.4

- **Partition** (break up) numbers to make them easier to work with.

3.6 + 5.7 = __
- Hold the bigger number in your head (5.7)
- Add on the ones (5.7 + 3 = 8.7)
- Add on the tenths (8.7 + 0.6 = 9.3)

So, 3.6 + 5.7 = 9.3

71 – 46 = (60 + 11) – (40 + 6)
= (60 – 40) + (11 – 6)
= 20 + 5
= 25

- Count on from the smallest number to work out differences.

What is the difference between 170 and 320?
Count on from 170 to 200 and then to 320.

Try this

1 What is 48 add 35? A 73 B 83 C 93
2 What is 2.3 +1.9? A 3.2 B 4.2 C 4.4
3 What is the difference between 145 and 129? A 16 B 14 C 24
4 What is the missing number? ☐ – 18 = 24 A 34 B 6 C 42

Practise

1 Use the first answer to help with the others.

a 7 + 6 = ☐

b 70 + 60 = ☐ c 700 + 600 = ☐ d 17 + 16 = ☐

e 1 007 + 3 006 = ☐ f 2 070 + 4 060 = ☐ g 0.7 + 0.6 = ☐

2 Answer these questions.

a What is the sum of 64 and 87?

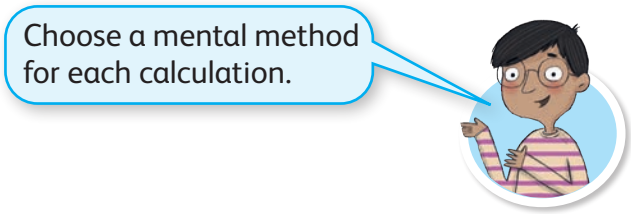
b What is the difference between 83 and 58?

c What is the total of 14, 15 and 16?

d What is 74 subtract 36?

3 Complete this addition square.

+	9	13	30
5			35
43		56	
80	89		



4 Look at the number machines. Complete each table.

a IN → +19 → OUT

IN	8		14		12		18	
OUT		25		32		30		38

b IN → +29 → OUT

IN	7		16		11		15	
OUT		37		32		41		47

Thinking mathematically

You need a set of digit cards 1–9.
Shuffle and take any four cards.
Make two 2-digit numbers.

- Find the total of the two numbers.
- Find the difference between the two numbers.
- Rearrange the four digits.
  What is the largest total and smallest difference you can make?

2.3 Brackets and order of operations

Do you remember?

Calculations should be carried out using the following **order** of **operations**.

- **Brackets:** work out any brackets first
- Division
- Multiplication
- Addition
- Subtraction

Maths words
order
operations
brackets

$5 \times (3 + 8) - 2$
$= 5 \times 11 - 2$
$= 55 - 2$
$= 53$

$(6 \times 2 - 8) + (12 \div 4 + 10)$
$= (12 - 8) + (3 + 10)$
$= 4 + 13$
$= 17$

Try this

1 What is the missing number?

$\square \div 8 + 3 = 8$

A 40 **B** 32 **C** 88

2 What is the missing number?

$3 \times \square - 15 = 9$

A 3 **B** 9 **C** 8

3 What is the missing number?

$(19 - 7) + \square = 18$

A 1 **B** 6 **C** 8

4 What is the missing number?

$4 \times (9 - \square) = 24$

A 12 **B** 6 **C** 3

Practise

1 Answer each of these number sentences. Remember to first calculate the numbers within brackets.

a $(13 - 5) \times 2 =$ ☐

b $3 \times (8 - 5) =$ ☐

c $(4 + 6) \div 2 =$ ☐

d $(8 + 2) - (3 + 5) =$ ☐

e $(9 \times 2) + (4 \times 5) =$ ☐

f $(15 - 9) + (13 - 7) =$ ☐

2 Draw brackets to make each number sentence answer 12.

a $19 - 12 - 5$

b $16 - 10 - 6$

c $22 - 5 + 5$

d $6 + 13 - 7$

e $24 - 6 - 6$

f $20 - 10 - 2$

3 Write the missing numbers.

a (☐ × 4) – 1 = 11

b 10 – (☐ × 3) = 4

c (4 × 2) + (☐ × 3) = 17

d (☐ × 5) – (5 × 4) = 10

e 12 ÷ (☐ × 2) = 2

f (☐ × 5) ÷ 2 = 10

4 Put brackets in these calculations to make different answers.
Record the different answers you can make.

a 19 – 10 – 5 – 2 = ☐

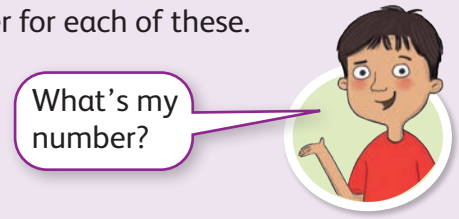
b 25 – 4 + 9 × 2 = ☐

c 15 + 11 – 9 – 6 = ☐

d 6 × 3 + 5 – 4 = ☐

Thinking mathematically

Work out the mystery number for each of these.



a When I double my number and then add 3, the answer is 17. ☐

b When I divide my number by 3 and then add 5, the answer is 12. ☐

c When I multiply my number by 5 and then subtract 6, the answer is 39. ☐

d When I divide my number by 4 and then subtract 2, the answer is 3. ☐

2.4 Multiplication

Maths words
multiply
multiples
estimate

Do you remember?

To **multiply** with large numbers, you need to be able to multiply **multiples** of 10.

34 × 26 = ☐

Look at these two methods:

Grid method:

×	30	4	
20	600	80	→ 680
6	180	24	→ + 204
			884

Vertical method:

$$\begin{array}{rrr} & 3 & 4 \\ \times & 2 & 6 \\ \hline 6 & 0 & 0 \\ & 8 & 0 \\ 1 & 8 & 0 \\ & 2 & 4 \\ \hline 8 & 8 & 4 \end{array} \begin{array}{l} \\ \\ (30 \times 20) \\ (4 \times 20) \\ (30 \times 6) \\ (6 \times 4) \\ \\ \end{array}$$

→ leading to →

$$\begin{array}{rrr} & 3 & 4 \\ \times & 2 & 6 \\ \hline 6 & 8 & 0 \\ 2 & 0 & 4 \\ \hline 8 & 8 & 4 \end{array} \begin{array}{l} \\ \\ (34 \times 20) \\ (34 \times 6) \\ \\ \end{array}$$

It is important to **estimate** an answer before multiplying.

584 × 46

Estimate:
≈ 600 × 50
≈ 30 000

$$\begin{array}{rrrr} & 5 & 8 & 4 \\ \times & & 4 & 6 \\ \hline & 3 & 5 & 0 & 4 \\ 2 & 3 & 3 & 6 & 0 \\ \hline 2 & 6 & 8 & 6 & 4 \end{array} \begin{array}{l} \\ \\ (584 \times 6) \\ (584 \times 40) \\ \\ \end{array}$$

Try this

1 What is the missing number?

70 × ☐ = 2 100

A 3 **B** 30 **C** 300

2 What is 1 500 multiplied by 6?

A 9 000 **B** 6 500 **C** 8 000

3 What is the missing number?

☐ × 42 = 1 680

A 44 **B** 45 **C** 40

4 What is 38 multiplied by 26?

A 648 **B** 988 **C** 1 048

Cambridge Primary
Revise for Primary Checkpoint

Mathematics

Study Guide

Second Edition

Build, reinforce and assess knowledge with additional practice and revision activities.

Cambridge Primary Revise for Mathematics covers the strands of the Cambridge Primary Mathematics curriculum framework: Number, Geometry and Measure, Statistics and Probability, with opportunities for Thinking and Working Mathematically embedded throughout.

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