

LEARN...

Sample pages from Maths 4

Key Facts to Learn

Learning Exercises 1 to 4

L1. Multiply by 6	Divide by 6
$1 \times 6 = 6$	$6 \div 6 = 1$
$2 \times 6 = 12$	$12 \div 6 = 2$
$3 \times 6 = 18$	$18 \div 6 = 3$
$4 \times 6 = 24$	$24 \div 6 = 4$
$5 \times 6 = 30$	$30 \div 6 = 5$
$6 \times 6 = 36$	$36 \div 6 = 6$
$7 \times 6 = 42$	$42 \div 6 = 7$
$8 \times 6 = 48$	$48 \div 6 = 8$
$9 \times 6 = 54$	$54 \div 6 = 9$
$10 \times 6 = 60$	$60 \div 6 = 10$
$11 \times 6 = 66$	$66 \div 6 = 11$
$12 \times 6 = 72$	$72 \div 6 = 12$

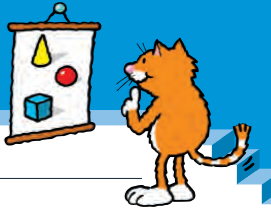
L2. Multiply by 7	Divide by 7
$1 \times 7 = 7$	$7 \div 7 = 1$
$2 \times 7 = 14$	$14 \div 7 = 2$
$3 \times 7 = 21$	$21 \div 7 = 3$
$4 \times 7 = 28$	$28 \div 7 = 4$
$5 \times 7 = 35$	$35 \div 7 = 5$
$6 \times 7 = 42$	$42 \div 7 = 6$
$7 \times 7 = 49$	$49 \div 7 = 7$
$8 \times 7 = 56$	$56 \div 7 = 8$
$9 \times 7 = 63$	$63 \div 7 = 9$
$10 \times 7 = 70$	$70 \div 7 = 10$
$11 \times 7 = 77$	$77 \div 7 = 11$
$12 \times 7 = 84$	$84 \div 7 = 12$

L3. Multiply by 8	Divide by 8
$1 \times 8 = 8$	$8 \div 8 = 1$
$2 \times 8 = 16$	$16 \div 8 = 2$
$3 \times 8 = 24$	$24 \div 8 = 3$
$4 \times 8 = 32$	$32 \div 8 = 4$
$5 \times 8 = 40$	$40 \div 8 = 5$
$6 \times 8 = 48$	$48 \div 8 = 6$
$7 \times 8 = 56$	$56 \div 8 = 7$
$8 \times 8 = 64$	$64 \div 8 = 8$
$9 \times 8 = 72$	$72 \div 8 = 9$
$10 \times 8 = 80$	$80 \div 8 = 10$
$11 \times 8 = 88$	$88 \div 8 = 11$
$12 \times 8 = 96$	$96 \div 8 = 12$

L4. Multiply by 9	Divide by 9
$1 \times 9 = 9$	$9 \div 9 = 1$
$2 \times 9 = 18$	$18 \div 9 = 2$
$3 \times 9 = 27$	$27 \div 9 = 3$
$4 \times 9 = 36$	$36 \div 9 = 4$
$5 \times 9 = 45$	$45 \div 9 = 5$
$6 \times 9 = 54$	$54 \div 9 = 6$
$7 \times 9 = 63$	$63 \div 9 = 7$
$8 \times 9 = 72$	$72 \div 9 = 8$
$9 \times 9 = 81$	$81 \div 9 = 9$
$10 \times 9 = 90$	$90 \div 9 = 10$
$11 \times 9 = 99$	$99 \div 9 = 11$
$12 \times 9 = 108$	$108 \div 9 = 12$

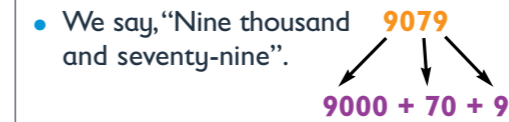
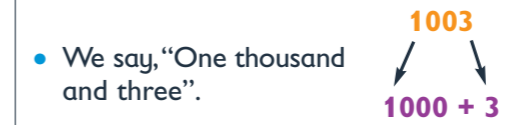
Key Facts to Learn

Learning Exercises 5 to 7



L5. Place value

- Four-digit numbers are all the whole numbers from 1000 to 9999.
- They can be broken down like this:



L6. Multiples

- A **multiple** of a number is the product of the number multiplied by another number.

- Multiples of 25:

25
50
100
125
250
275
300
325
...

- Multiples of 1000:

1000
2000
3000
4000
5000
6000
7000
8000
...

L7. Dividing and multiplying by 10, 100 and 1000 including decimals

1000	2000	3000	4000	5000	6000	7000	8000	9000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

- Each line in the grid is **10 times bigger** than the one below.
- To **multiply**, go **up** rows, for example:
- To **divide**, go **down** rows, for example:

$$2 \times 10 = 20$$

$$0.3 \times 1000 = 300$$

$$60 \times 100 = 6000$$

$$4000 \div 10 = 400$$

$$700 \div 1000 = 0.7$$

$$90 \div 100 = 0.9$$

LEARN...

Sample pages from Maths 4

Key Facts to Learn

Learning Exercises 13 to 14

L13. Roman numerals

- Roman numerals are based on capital letter **symbols** which each have a different value:

Value	Symbol	Value	Symbol
1	I	8	VIII
2	II	9	IX
3	III	10	X
4	IV	11	XI
5	V	12	XII
6	VI	50	L
7	VII	100	C

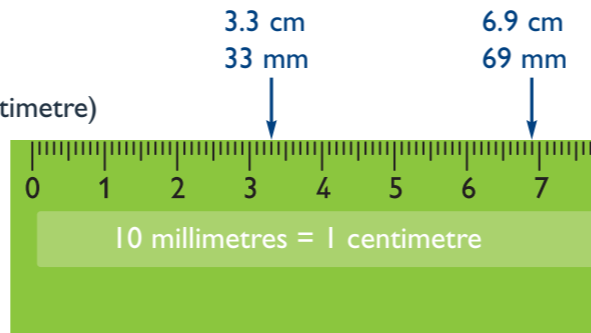
- Numbers are formed by combining **symbols** together and adding the **values**, for example:
 - 2 = two ones = II
 - 13 = ten and three ones = XIII
 - 27 = two tens and five and two ones = XXVII
 - 74 = fifty and twenty and four = LXXIV
- The Romans had no zero! So, for example, this is how they would write 306:
 - 306 = three hundreds and five and one = CCCVI
- They also had a short way of writing numbers just less than multiples of 5, for example:
 - 4 = one from five = IV
 - 9 = one from ten = IX
 - 40 = ten from 50 = XL
 - 90 = ten from one hundred = XC
 - 94 = ten from one hundred and one from five = XCIV



L14. Measurement: metric

Length

- 10 mm (millimetre) = 1 cm (centimetre)
- 100 cm = 1 m (metre)
- 1000 mm = 1 m
- 1000 m = 1 km (kilometre)
- 500 m = $\frac{1}{2}$ km



Key Facts to Learn

Learning Exercises 15 to 17



L15. Measurement: metric

Mass / Weight

- 1000 mg (milligram) = 1 g (gram)
- 1000 g = 1 kg (kilogram)
- 500 g = $\frac{1}{2}$ kg



The oranges weigh 700 g.



There are 500 ml of milk in the jug.

Capacity

- 1000 ml (millilitre) = 1 l (litre)
- 500 ml = $\frac{1}{2}$ l

L16. Measurement: telling the time, 12-hour clock

- am and pm are used for the **12-hour** clock.
- am** is used for times up to midday, for example, 7:29 am.
- pm** is used for times from midday to midnight, for example, 9:09 pm.



7:29 am



9:09 pm

L17. Measurement: telling the time, 24-hour clock

- An **analogue** clock shows the time using hands which point to numbers.
- This analogue clock shows the **24-hour** clock, for example:



7:17 pm = 19:17

- A **digital** clock shows information as a row of numbers.



- These digital clocks show the 24-hour clock:



- We say, "Oh six forty-nine" or "Forty-nine minutes past six".



- We say, "Eighteen forty-nine" or "Forty-nine minutes past six".

PRACTISE...
Sample pages
from Maths 4

Practice Exercise 2

Adding and Subtracting with Multiples of 10

P2a

- Write the number that is 1 more than:

4678 389

1250 2939

- Write the number that is 1 less than:

500 3040

3400 9580

- Write the number that is 10 more than:

3467 9870

9890 3495

- Write the number that is 100 less than:

9721 4580

3190 1390

P2b

- Starting with 68, how many tens do you need to add to get more than 100?

- Starting with 574, how many hundreds do you need to add to get more than 1000?

- Work out:

£6.00 less 1p £

505 ml less 10 ml ml

2000 g less 100 g g

1280 m less 1000 m m

P2c

- Write the correct numbers in the spaces:

$\xrightarrow{1000 \text{ more is}}$ 7909

$\xrightarrow{1000 \text{ less is}}$ 5209

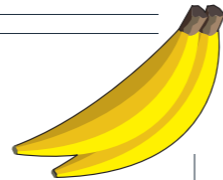
2095 $\xrightarrow{10 \text{ less is}}$

$\xrightarrow{100 \text{ less is}}$ 3007

$\xrightarrow{10 \text{ more is}}$ 209

$\xrightarrow{100 \text{ more is}}$ 4305

jottings



Practice Exercise 3

Comparing and Ordering Numbers



P3a

- Insert the symbol $<$ or $>$ or $=$ between these pairs of numbers:

• 719 917 • 313 331

• 109 190 • 2123 2123

- Andy has run 483 metres and Lucas has run 438 metres.

• Who has run further?

• How many metres further? m

- A new PC costs between £1080 and £1100. How much could it cost?

- Put these numbers in order, smallest first: **6739 7693 3967 9376**

1. 2.

3. 4.

P3b

- Insert the symbol $<$ or $>$ between these pairs of numbers:

• 1012 1020

• 4286 4826

• -6 -1

• -9 -2

• 3×6 2×8

• $56 \div 7$ $63 \div 9$

P3c

- A banana weighs between 101 g and 110 g. How heavy could it be? g

- Put these numbers in order, largest first:

2110 2101 1120 2900

1. 2.

3. 4.

- Write a possible number in the box:

$5630 < \text{ } < 5650$

$1090 < \text{ } < 1100$

- Which number is half way between

6740 and 6750?

8670 and 8690?

PRACTISE...

Sample pages from Maths 4

Practice Exercise 14b and 14c

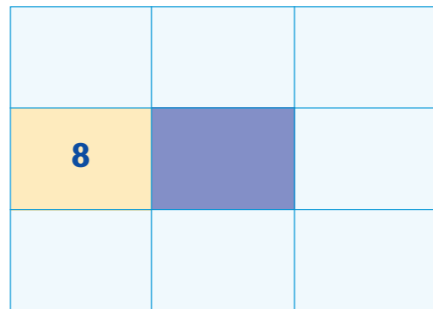
Problem Solving

P14b

- Write these numbers

1 2 3 4 5 6 9

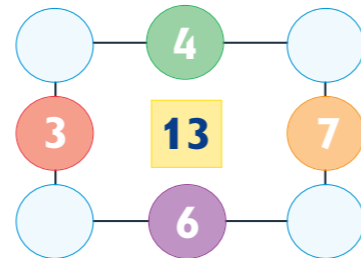
one in each box, so that each line (horizontal and vertical) adds up to 12.



- Put numbers in the circles so that the total along each side of the polygon is equal to the number in the centre.

- Use these numbers:

1 2 3 4 5 6 7 8



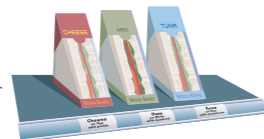
P14c

- There are 48 people on a train. Half are reading a newspaper. One quarter are reading a book and the rest are talking.

- How many are not reading?
- If a quarter of those reading get off, how many people are still on the train?

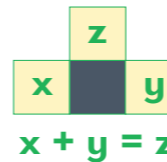
- David bought a drink and a sandwich for £5.60.

- The sandwich cost £4 more than the drink. How much was the drink?

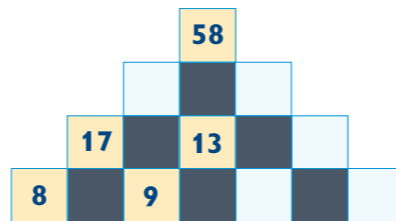


36

- Follow this rule...



...to find the missing numbers and complete this pyramid:



jottings

Practice Exercise 15

Fractions



P15a

- Look at each shape and tick the fraction that is shaded purple:



$\frac{1}{4}$ $\frac{2}{10}$

$\frac{1}{3}$ $\frac{1}{2}$



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

$\frac{2}{3}$ $\frac{3}{10}$

- Tick the fractions that are equivalent to **one whole**:

two halves three quarters

three thirds four quarters

five tenths five sixths

- What is a tenth of 300?
- What is a quarter of 80?

- Draw arrows to show $1\frac{1}{4}$ and $2\frac{3}{4}$ on this number line:



P15b

- Tick the two fractions that are the same:

$\frac{4}{8}$ $\frac{2}{16}$ $\frac{1}{4}$ $\frac{1}{2}$

- Fill in the missing number:

$\frac{6}{8} = \frac{\quad}{4}$ $\frac{3}{9} = \frac{\quad}{3}$ $\frac{90}{100} = \frac{\quad}{10}$

- Write these as fractions:

• one tenth • two thirds

- Which one is larger: one quarter or one eighth?

- Which one is smaller: one sixth or one third?

P15c

- What is:

- one fifth of £1? p
- one half of 1 kilometre? m
- one quarter of 1 metre? cm

- What fraction of 1 metre is 30 cm?

- Which of these fractions is greater than one half?

$\frac{1}{3}$ $\frac{7}{8}$ $\frac{4}{10}$ $\frac{2}{5}$

- Add together two halves, three thirds and two quarters.

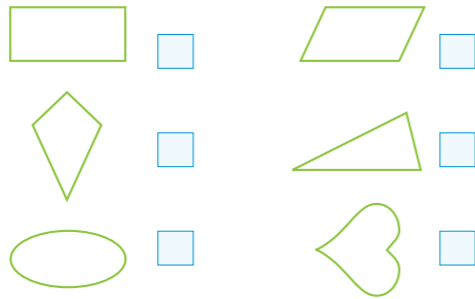
37

PRACTISE...
Sample pages
from Maths 4

Practice Exercise 28a and 28b
Geometry: Reflective Symmetry and Translation

P28a

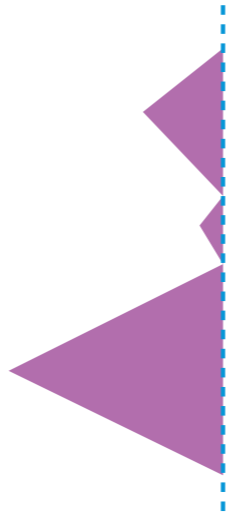
- Tick the shapes that have at least one line of symmetry:



- Here is a square. Draw in as many lines of symmetry as you can.

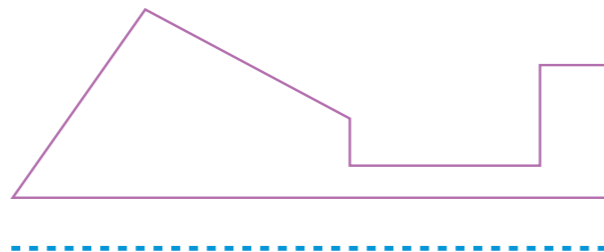


- Reflect this shape in the mirror line:



P28b

- Draw the reflection of this shape in the mirror line:

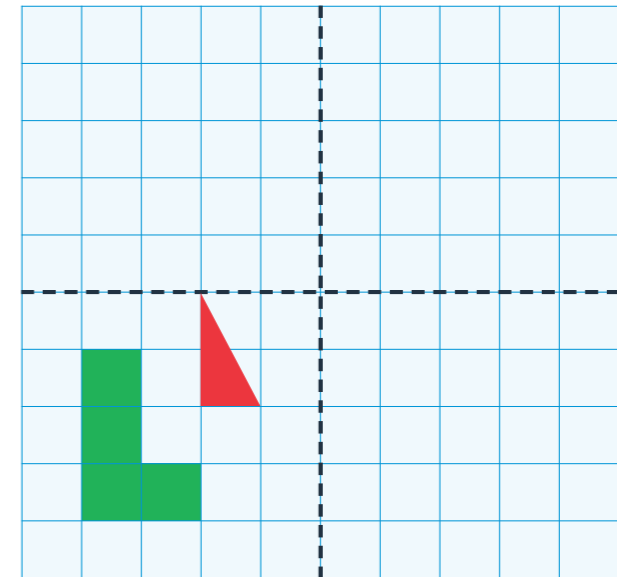


Practice Exercise 28c
Geometry: Reflective Symmetry and Translation

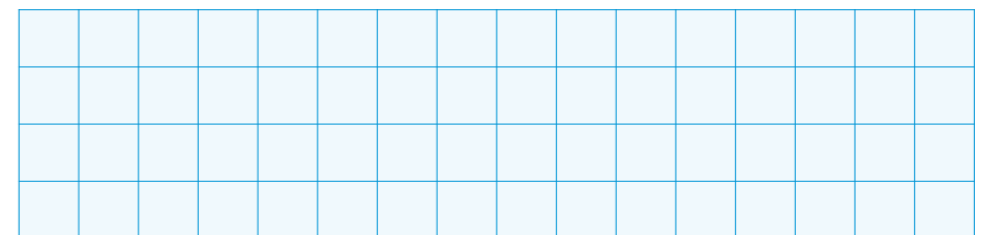


P28c

- Reflect the shapes across the horizontal mirror line and draw them into the top left-hand side of the grid.
- Then, reflect the shapes across the vertical mirror line and draw them into the top right-hand side of the grid.
- Now, reflect the shapes across the horizontal mirror line and draw them into the bottom right-hand side of the grid.



- Most brands have logos, many of which are symmetrical. Find three symmetrical logos and sketch them here.



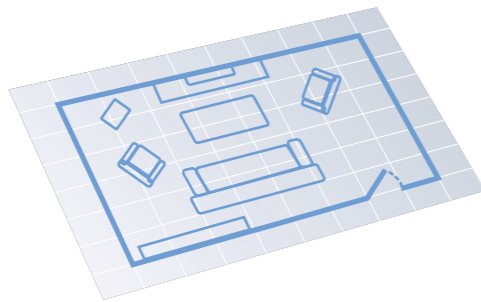
THINK...

Sample pages from Maths 4

Thinking Tasks 16 to 18

T16. Floor plan

- Choose a room in your house and draw a sketch plan of it.
- Measure the length of each side as accurately as you can by using a tape measure or a ruler. Note the measurements on your sketch plan.
- Now draw a larger, neater plan on the squared paper.
- Write in the measurements of each side.
- Work out the perimeter.

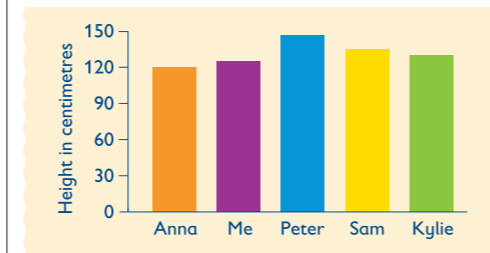


T18. Falling leaves

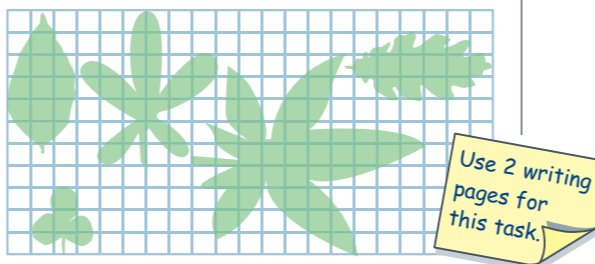
- Collect five leaves of different shapes and sizes.
- Sort them in order of size and estimate their area in cm^2 .
- Now draw around the one you have estimated to have the largest area.
- Find its approximate area by counting whole squares. How close was your estimate?
- Review your other estimates.

T17. Stand up straight

- How tall are you in metres and centimetres?
- Try different ways of measuring yourself, for example, standing against a wall or lying on the ground.
- Now measure some other people.
- Draw a bar chart to show everyone's height, for example:



- Explain the information your bar chart gives you.
- When might this information be useful?



- Now find the approximate area of the other leaves in the same way.
- How could you make your approximate area more accurate?

Thinking Tasks 19 to 21



T19. What's next?

- Choose a day and make a timetable to show what you do at school.
- There should be two columns: a narrow one for the time, and a wider one for what you do at that time.

Here's an example:

9:00 am	Bell rings and we go into school.
3:20 pm	School ends and we go home.

- What would you include if you were in charge of the school timetable?
- Plan a timetable for your perfect day at school.
- You may include anything you enjoy or want to do.
- Your day must last six hours and you may have a maximum of one hour for lunch or breaks.

T20. Sleep well

- Keep a sleep diary for three nights. Write down when you went to bed and when you got up.
- How long did you sleep each night?

Here's an example:

Tuesday: bed at 8:45 pm.
Wednesday: got up at 7:30 am.
Slept for 10 hours 45 minutes.

- Note how well you slept and how you felt the next day.
- What is the difference between a day when you are at school and the weekend?
- What difference is there between the day after you have had a long sleep and one following a short night's sleep?



T21. Colour combinations

- Mr Dawson is building some 3-storey houses and wants to paint them all differently.
- Here are three possible combinations using just two colours:
- Find all the other possibilities and draw them.
- If he decides to build some 4-storey properties and paint them using two colours, what combinations could he have?

