

B

Write as Arabic numbers.

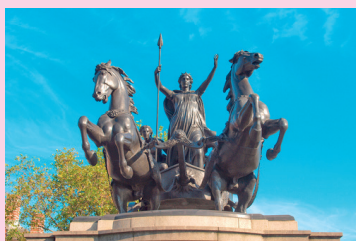
- | | |
|---------|-----------|
| 1 XLII | 9 LXXV |
| 2 LXXIX | 10 LVIII |
| 3 XCVI | 11 XCIX |
| 4 LIV | 12 XLV |
| 5 XLIX | 13 LXXXIV |
| 6 LXXXI | 14 LXVI |
| 7 XCIII | 15 XC |
| 8 LX | 16 XLIX |

Write as Roman numerals.

- | | | |
|-------|-------|-------|
| 17 94 | 22 74 | 27 46 |
| 18 48 | 23 41 | 28 68 |
| 19 63 | 24 59 | 29 97 |
| 20 89 | 25 92 | 30 55 |
| 21 95 | 26 83 | 31 44 |

Copy each sentence changing the numbers to Roman numerals.

- 32 The first Roman Emperor, Augustus Caesar, died in AD 14 aged 75.
- 33 The conquest of Britain began in AD 43.
- 34 Boudicca's revolt against Roman rule was crushed in AD 61.
- 35 The centurion commanded 80 soldiers but only 59 survived the battle.

**C**

Write as Arabic numbers.

- | | |
|------------|---------------|
| 1 CXXXVI | 9 DLIII |
| 2 DCXIV | 10 DCCCXCVIII |
| 3 CCXCV | 11 CMLXVII |
| 4 DCCCXXIX | 12 DCCXL |
| 5 CCCXLII | 13 CLXXI |
| 6 DCCXXXIV | 14 CCVIII |
| 7 CMIII | 15 CDXXII |
| 8 CDLXXX | 16 DCLXIX |

Write as Roman numerals.

- | | | |
|--------|--------|--------|
| 17 443 | 22 678 | 27 928 |
| 18 580 | 23 724 | 28 164 |
| 19 109 | 24 352 | 29 791 |
| 20 985 | 25 849 | 30 536 |
| 21 212 | 26 496 | 31 652 |

Write the distance between each pair of Roman cities in Roman numerals.

- | | |
|-------------------------|-----------|
| 32 Norwich – Leicester | 119 miles |
| 33 Dorchester – Lincoln | 246 miles |
| 34 London – Carlisle | 314 miles |
| 35 Dover – Bath | 187 miles |
| 36 York – Exeter | 298 miles |

Write the distance to Rome from each city in Arabic numbers.

- | | |
|-------------|------------------|
| 37 Nice | CDXXXIII miles |
| 38 Bari | CCLXXIX miles |
| 39 Geneva | DLIV miles |
| 40 Paris | DCCCLXXXVI miles |
| 41 Florence | CLXXII miles |

Mastery

Write three numbers in Roman Numerals which are important to you.

(For example: Your age, your house number, how many pets you have).

Ask someone else to write the numbers as Arabic numbers and to guess what that number means to you. Give them a point for every correct answer!

TARGET To practise using a written method to add.

Examples

$$\begin{array}{r} 1 \ 9 \ 3 \ 4 \\ + \ 6 \ 8 \ 7 \\ \hline 2 \ 6 \ 2 \ 1 \\ \hline 1 \ 1 \ 1 \end{array}$$

$$\begin{array}{r} 7 \ 2 \ 4 \ 5 \\ + \ 1 \ 7 \ 9 \ 3 \\ \hline 9 \ 0 \ 3 \ 8 \\ \hline 1 \ 1 \end{array}$$

$$\begin{array}{r} 6 \ 5 \ 0 \ 7 \ 8 \\ + \ 1 \ 5 \ 4 \ 3 \ 9 \\ \hline 8 \ 0 \ 5 \ 1 \ 7 \\ \hline 1 \ 1 \ 1 \end{array}$$

A

Copy and complete.

- | | | | |
|---|-------|----|-------|
| 1 | 148 | 6 | 385 |
| | + 128 | | + 167 |
| 2 | 357 | 7 | 568 |
| | + 235 | | + 353 |
| 3 | 272 | 8 | 454 |
| | + 166 | | + 247 |
| 4 | 659 | 9 | 797 |
| | + 117 | | + 148 |
| 5 | 491 | 10 | 576 |
| | + 238 | | + 234 |

- 11 A newsagent sells 272 papers in the morning and 155 in the afternoon. How many papers are sold altogether?
- 12 There are 196 cars in a car park. 146 more come in. How many cars are in the car park now?
- 13 A cinema audience is made up of 256 children and 149 adults. How many people are watching the film?

B

Copy and complete.

- | | | | |
|---|--------|----|--------|
| 1 | 4652 | 6 | 5494 |
| | + 3837 | | + 3645 |
| 2 | 2389 | 7 | 4736 |
| | + 1543 | | + 1786 |
| 3 | 4925 | 8 | 7163 |
| | + 2635 | | + 1457 |
| 4 | 3270 | 9 | 6841 |
| | + 1456 | | + 2975 |
| 5 | 2517 | 10 | 3678 |
| | + 1869 | | + 2786 |

- 11 A dairy produces 2685 litres of full fat milk and 1347 litres of skimmed milk. How many litres of milk is produced altogether?
- 12 The mileage of a car is 7479 miles. In the next month it is driven a further 1962 miles. What is the mileage now?
- 13 In April a plumber earns £3165. In May he earns £2798. How much has he earned in the two months combined?

C

Set out as in the examples.

- 1 14873 + 17548
- 2 43249 + 15965
- 3 32768 + 27857
- 4 71956 + 8478
- 5 22475 + 25895
- 6 56837 + 12393
- 7 48394 + 6769
- 8 31592 + 18838
- 9 63868 + 16746
- 10 52978 + 38872
- 11 A clothes shop makes a profit in one year of £81537. In the following year its profit increases by £14925. What is the profit in the second year?
- 12 The winning candidate in an election polls 46915 votes. The other three candidates poll 37396 votes altogether. How many people voted in the election?
- 13 The first edition of a magazine sells 38429 copies. The second edition sells 17648 more copies than the first. How many copies of the second edition are sold?

Mastery

Fill in the missing numbers:

$$\begin{array}{r} 2 \ 3 \ _ \ 5 \\ + \ 5 \ _ \ 7 \ 4 \\ \hline _ \ 5 \ 3 \ _ \end{array}$$

$$\begin{array}{r} 9 \ _ \ 8 \ _ \\ + \ _ \ 4 \ _ \ 1 \\ \hline 9 \ 7 \ 0 \ 3 \end{array}$$

TARGET To recognise and use factor pairs in mental calculations.

Examples

$$\begin{aligned} 18 \times 15 &= 18 \times 3 \times 5 \\ &= 90 \times 3 \\ &= 270 \end{aligned}$$

$$\begin{aligned} 144 \div 16 &= 144 \div 2 \div 8 \\ &= 72 \div 8 \\ &= 9 \end{aligned}$$

$$\begin{aligned} 480 &= \square \times 6 \\ 48 &= 8 \times 6 \\ 480 &= 80 \times 6 \\ \text{Missing number is } 80. \end{aligned}$$

A

Complete the factor pairs.

- 1 The factor pairs of 8.
1 and 2 and
- 2 The factor pairs of 10.
 and 2 and 10
- 3 The factor pairs of 21.
21 and and 3
- 4 The factor pairs of 22.
1 and and
- 5 The factor pairs of 12.
1 and 2 and
3 and
- 6 The factor pairs of 18.
 and and
 and

Find pairs of factors for each target number.

- 7 6 (2 pairs)
- 8 9 (2 pairs)
- 9 14 (2 pairs)
- 10 15 (2 pairs)
- 11 16 (3 pairs)
- 12 20 (3 pairs)

B

Find all the factors of each target number. The number of factors is shown in brackets.

- 1 13 (2)
- 2 28 (6)
- 3 32 (6)
- 4 40 (8)
- 5 48 (10)
- 6 54 (8)
- 7 60 (12)
- 8 72 (12)
- 9 88 (8)
- 10 100 (9)
- 11 126 (12)
- 12 144 (15)

Break down the second number into factors to help work out each problem.

- 13 18×6
- 14 16×8
- 15 22×12
- 16 15×18
- 17 $84 \div 4$
- 18 $210 \div 14$
- 19 $96 \div 6$
- 20 $108 \div 12$

Find a pair of factors to solve each missing number problem.

- 21 $140 = \square \times 20$
- 22 $270 = 9 \times \square$
- 23 $150 = 50 \times \square$
- 24 $280 = \square \times 4$
- 25 $420 = \square \times 60$
- 26 $320 = 4 \times \square$

C

Find all the factors of:

- 1 66
- 2 96
- 3 114
- 4 150
- 5 128
- 6 121
- 7 143
- 8 135
- 9 156
- 10 131
- 11 196
- 12 180

Break the second number down into factors to help work out each problem.

- 13 28×16
- 14 24×25
- 15 22×18
- 16 31×24
- 17 $168 \div 12$
- 18 $176 \div 22$
- 19 $165 \div 15$
- 20 $147 \div 21$

Find the highest factor shared by:

- 21 15 and 40
- 22 18 and 24
- 23 12 and 20
- 24 30 and 50
- 25 32 and 56
- 26 18 and 45
- 27 14 and 63
- 28 22 and 55
- 29 28 and 42
- 30 32 and 48

Mastery

Are there any numbers which are **lower** than the sum of their factors?

Try adding the factors up (without the number itself included) and see if you can find any. Here is a start: For 6, the factors are 1, 2, 3 and 6. $1 + 2 + 3 = 6$ which is NOT lower than 6.

TARGET To practise counting forwards and backwards using fractions.

Example

Count on 6 steps of $\frac{1}{8}$ from 0. 0 $\frac{1}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{5}{8}$ $\frac{6}{8}$

Count back 6 steps of $\frac{1}{10}$ from 1. 1 $\frac{9}{10}$ $\frac{8}{10}$ $\frac{7}{10}$ $\frac{6}{10}$ $\frac{5}{10}$ $\frac{4}{10}$

A

Start at 0.

- 1 Count on 4 steps of $\frac{1}{4}$.
- 2 Count on 6 steps of $\frac{1}{10}$.
- 3 Count on 3 steps of $\frac{1}{3}$.
- 4 Count on 4 steps of $\frac{1}{6}$.
- 5 Count on 5 steps of $\frac{1}{5}$.

Copy and complete each sequence.

- 6 $\frac{3}{8}$ $\frac{4}{8}$ $\frac{7}{8}$ 1
- 7 $\frac{3}{7}$ $\frac{4}{7}$ $\frac{5}{7}$ $\frac{6}{7}$
- 8 0 $\frac{2}{5}$ $\frac{4}{5}$
- 9 $\frac{1}{6}$ $\frac{2}{6}$ 1
- 10 $\frac{6}{10}$ $\frac{8}{10}$ 1

B

Count on from 0 to 1 in steps of:

- 1 one third
- 2 one tenth
- 3 one sixth
- 4 one ninth.

Count back from 1 to 0 in steps of:

- 5 one quarter
- 6 one eighth
- 7 one fifth
- 8 one seventh.

Write each sequence.

- 9 Start at $\frac{3}{8}$. Count on 5 steps of $\frac{1}{8}$.
- 10 Start at $\frac{5}{10}$. Count back 3 steps of $\frac{1}{10}$.
- 11 Start at $\frac{17}{100}$. Count on 6 steps of $\frac{1}{100}$.
- 12 Start at $\frac{8}{9}$. Count back 4 steps of $\frac{1}{9}$.
- 13 Start at $\frac{5}{12}$. Count on 7 steps of $\frac{1}{12}$.
- 14 Start at 1. Count back 5 steps of $\frac{1}{100}$.

C

Start at 0.

- 1 Count on 4 steps of $\frac{2}{9}$.
- 2 Count on 4 steps of $\frac{2}{7}$.
- 3 Count on 5 steps of $\frac{2}{10}$.
- 4 Count on 4 steps of $\frac{3}{4}$.
- 5 Count on 5 steps of $\frac{2}{8}$.

Copy and complete each sequence.

- 6 $\frac{1}{3}$ $\frac{2}{3}$ 1 $1\frac{1}{3}$ $2\frac{1}{3}$
- 7 $\frac{1}{2}$ 1 3 $3\frac{1}{2}$
- 8 $\frac{3}{5}$ 1 $1\frac{2}{5}$ $1\frac{4}{5}$
- 9 $\frac{3}{10}$ $\frac{6}{10}$ $1\frac{2}{10}$ $1\frac{8}{10}$
- 10 $\frac{75}{100}$ $\frac{80}{100}$ $\frac{90}{100}$ $\frac{95}{100}$

Mastery

Complete this sequence:

$\frac{1}{2}$ — 1 — $1\frac{1}{2}$ $1\frac{3}{4}$ —

TARGET To convert between metric units of length.

Examples

50 mm = 5 cm	490 cm = 4.9 m	1700 m = 1.7 km
126 mm = 12.6 cm	30 cm = 0.3 m	230 m = 0.23 km
8 mm = 0.8 cm	278 cm = 2.78 m	3050 m = 3.05 km

A

Copy and complete.

- 1 24 mm = cm
- 2 3 mm = cm
- 3 9.6 cm = mm
- 4 3.1 cm = mm
- 5 880 cm = m
- 6 590 cm = m
- 7 0.7 m = cm
- 8 4.6 m = cm
- 9 7300 m = km
- 10 400 m = km
- 11 1.2 km = m
- 12 6.1 km = m
- 13 A pile of eight identical books is 24 cm tall. How wide is each book in millimetres?
- 14 A reel of tape is 5 m long. 40 cm is used. How much tape is left?

B

Copy and complete.

- 1 66 mm = cm
- 2 185 mm = cm
- 3 1.3 cm = mm
- 4 14.4 cm = mm
- 5 157 cm = m
- 6 81 cm = m
- 7 7.62 m = cm
- 8 2.09 m = cm
- 9 5340 m = km
- 10 3720 m = km
- 11 9.95 km = m
- 12 0.58 km = m
- 13 Each length of a model railway track is 30 cm long. How long are twelve lengths of track in metres?
- 14 Arlene's finger is 8.3 cm long. Chandra's is 9 mm shorter. How long is Chandra's finger?

C

Copy and complete.

- 1 4916 mm = m
- 2 582 mm = m
- 3 1.704 m = mm
- 4 0.09 m = mm
- 5 1215 cm = m
- 6 0.5 cm = m
- 7 6.08 m = cm
- 8 13.9 m = cm
- 9 827 m = km
- 10 24 m = km
- 11 5.096 km = m
- 12 0.003 km = m
- 13 Omar's journey to school is 1.64 km. Tudor's journey is 575 m further. How long is Tudor's journey to school?
- 14 A row of twenty carpet tiles is 9 m long. How long is one tile in centimetres?

Mastery

Match the lengths:

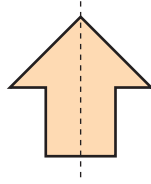
1.5 metres	215 mm
4 metres and 90 cm	150 cm
21 cm and 5 mm	490 cm

TARGET To identify lines of symmetry in 2-D shapes.

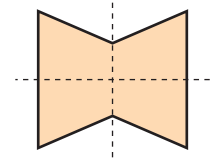
A shape is symmetrical if half of its shape matches the other half exactly. The line separating the two halves is the line of symmetry or mirror line.

Examples

One line of symmetry



Two lines of symmetry



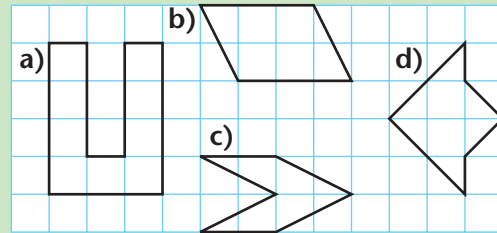
A

1 Which of these letters are not symmetrical?

R C T H P W
B Z M E F Y

2 Copy the symmetrical letters and draw on the line of symmetry.

3 Which of these shapes is not symmetrical?



4 Copy the symmetrical shapes and draw on the line of symmetry.

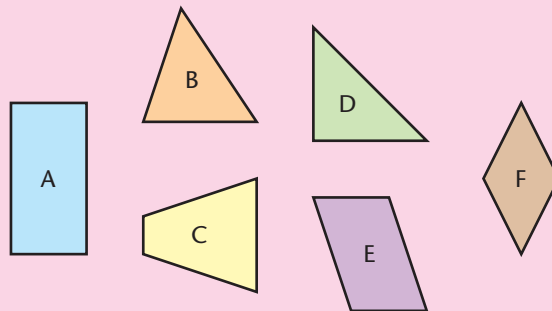
B

1 Which of these shapes have:

- a) one line of symmetry
- b) no line of symmetry?

2 Which of these shapes has:

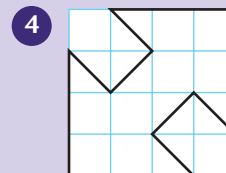
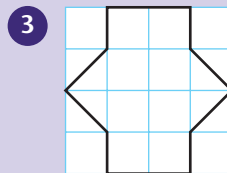
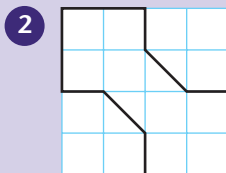
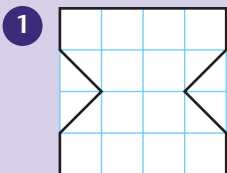
- a) two lines of symmetry
- b) four lines of symmetry?



3 Use squared paper. Copy the symmetrical shapes. Draw on the line(s) of symmetry.

C

Use squared paper. Copy the shapes. Draw both lines of symmetry.



Mastery

Write your first name out in capital letters.
How many lines of symmetry can you spot?