

ADDITION AND SUBTRACTION OF WHOLE NUMBERS

HOMEWORK 1.1 Whole Numbers and Place Value

Remember to show all your working. Do not use a calculator.

- 1 Write the following numbers in figures.
 - a Nineteen
 - b One hundred and fifteen
 - c Seven hundred and three
 - d Five thousand and sixty seven.

- 2 Write these numbers in words:
 - a 48
 - b 503
 - c 274
 - d 52 400

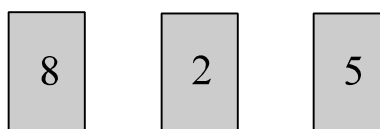
- 3 What does the figure 4 mean in each of the numbers?
 - a 24
 - b 403
 - c 49
 - d 4271

- 4 Write, in figures, the numbers given below.

	Thousand	Hundreds	Tens	Units
a		6		2
b	1		8	4
c	5	2		7

- 5 Put these numbers in order of size, smallest first.
 - a 527, 572, 257
 - b 96, 103, 92

6



- a Write down the largest three-figure number you can make using all three of these cards.
- b Write down the largest two-figure number you can make using two of these cards.
- c Write down all the three-figure numbers you can make using all three cards. Put them in order of size, smallest first.

ADDITION AND SUBTRACTION OF WHOLE NUMBERS

HOMEWORK 1.2 Ordering and Adding Numbers

Remember to show all your working. Do not use a calculator

- 1 What do you add to 7 to get 10?
- 2 Work out, in your head **a** $5 + 9$ **b** $7 + 7$ **c** $4 + 9$ **d** $6 + 9$
- 3 Work out, in your head **a** $2 + 8 + 3 + 5$ **b** $5 + 10 + 5 + 6$
- 4 This sequence is formed by starting with 2 and adding 4 to the previous number: 2, 6, 10, 14, ... Write down the next three numbers.
- 5 Copy and complete

a	36
	$+ \underline{25}$
	—

b	52
	$+ \underline{39}$
	—

c	63
	$+ \underline{38}$
	—
- 6 Write each addition in the same way as question 5 and find the answer.

a	$32 + 45$
----------	-----------

b	$134 + 27$
----------	------------

c	$426 + 244$
----------	-------------
- 7 Copy and complete

a	214
	63
	$+ \underline{17}$
	—

b	502
	54
	$+ \underline{26}$
	—

c	325
	53
	$+ \underline{122}$
	—
- 8 Find **a** $21 + 35 + 25$ **b** $42 + 21 + 43$

ADDITION AND SUBTRACTION OF WHOLE NUMBERS

HOMEWORK 1.3 Subtraction

Remember to show all your working. Do not use a calculator.

- 1 Work out these subtractions in your head.

a	$12 - 4$
----------	----------

b	$16 - 9$
----------	----------

c	$20 - 7$
----------	----------
- 2 This sequence is formed by starting with 80 and taking away 4 from the previous number: 80, 76, 72, ... Write down the next four numbers.
- 3 Copy and complete

a	36
	$- \underline{5}$
	—

b	72
	$- \underline{38}$
	—

c	266
	$- \underline{57}$
	—
- 4 Write each subtraction in the same way as question 3 and find the answer.

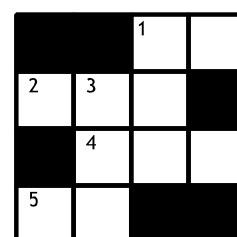
a	$32 - 9$
----------	----------

b	$52 - 25$
----------	-----------

c	$256 - 157$
----------	-------------
- 5 Find the difference between the value of the 7 in the number 37 and the value of the 5 in the number 526.
- 6 Copy and complete this cross-number puzzle.

Across	
1	$160 - 90$
2	$486 - 122$
4	$232 - 61$
5	$100 - 51$

Down	
1	$868 - 121$
3	$645 - 26$



MULTIPLICATION AND DIVISION OF WHOLE NUMBERS

HOMEWORK 2.1

Multiplication

Remember to show all your working. Do not use a calculator.

- Write down
a 5×7 **b** 7×3 **c** 8×5 **d** 7×8 **e** 9×9
- Copy and fill in the blanks
a $4 \times \square = 36$ **b** $9 \times \square = 54$ **c** $\square \times 8 = 64$ **d** $\square \times 7 = 6 \times \square$
- Copy and complete the following multiplications.
a
$$\begin{array}{r} 36 \\ \times 7 \\ \hline \end{array}$$
b
$$\begin{array}{r} 72 \\ \times 8 \\ \hline \end{array}$$
c
$$\begin{array}{r} 66 \\ \times 9 \\ \hline \end{array}$$
- If you can do these in your head write down the answer. If you need to write them down set them out like question 3.
a 72×5 **b** 3×61 **c** 8×57 **d** 64×9 **e** 413×7
- Find
a $3 \times 5 \times 7$ **c** $8 \times 4 \times 3$ **e** $18 \times 5 \times 2$
b $6 \times 2 \times 7$ **d** $2 \times 3 \times 4 \times 5$ **f** $25 \times 7 \times 3$

MULTIPLICATION AND DIVISION OF WHOLE NUMBERS

HOMEWORK 2.2

Division

Remember to show all your working. Do not use a calculator.

- Find
a $24 \div 6$ **b** $24 \div 8$ **c** $45 \div 5$ **d** $35 \div 7$ **e** $42 \div 6$
- Copy and fill in the blanks
a $5 \times \square = 40$ so $40 \div 5 = \square$ **b** $\square \times 9 = 72$ so $72 \div 9 = \square$
- Write these with the symbol ' $>$ ' or ' $<$ ' or ' $=$ ' in place of the box.
a $20 \div 4 \square 5$ **c** $49 \div 7 \square 7$ **e** $40 \div 6 \square 7$
b $53 \div 6 \square 9$ **d** $21 \div 5 \square 4$ **f** $74 \div 8 \square 9$
- 53 cars have to be parked in rows of 8.
a How many complete rows are there?
b How many spaces are left in the next row?
- Find, giving the remainder
a $17 \div 3$ **b** $43 \div 5$ **c** $60 \div 8$
- Calculate, giving the remainder when there is one
a $435 \div 5$ **b** $735 \div 7$ **c** $740 \div 8$ **d** $1824 \div 9$
- Jeff paid £4.41 for 7 cartons of milk. How much does one carton cost?

MULTIPLICATION AND DIVISION OF WHOLE NUMBERS**HOMEWORK 2.3**
Multiplication
and Division by
10, 100, ...

Remember to
show all your
working. Do not
use a calculator.

- 1** Find
- | | | |
|--------------------------|--------------------------|--------------------------|
| a 8×10 | c 10×27 | e 310×10 |
| b 70×100 | d 100×82 | f 56×100 |
- 2** Find
- | | | |
|-------------------------|--------------------------|---------------------------|
| a 32×30 | c 46×300 | e 122×500 |
| b 51×60 | d 52×40 | f 244×200 |
- 3** Cans of juice come in packs of 10.
How many packs are there in a delivery of 520 cans?
- 4** Find
- | | | |
|------------------------|--------------------------|---------------------------|
| a $500 \div 10$ | c $15000 \div 10$ | e $1800 \div 100$ |
| b $740 \div 10$ | d $900 \div 100$ | f $24000 \div 100$ |
- 5** Write these in order of size with the smallest first.
 $2500 \div 100$, 15×10 , 12×100 , $500 \div 10$
- 6** Thirty-four thousand nails are put into packets.
Each packet holds one hundred nails.
How many packets are needed?
- 7** 440 books are delivered to a bookshop.
Each shelf in the bookshop will hold 20 books.
How many shelves are needed?
- 8** One of these answers is right, the other two are wrong.
 $3600 \div 100 =$
- A** 36000 **B** 36 **C** 3600

Which answers are wrong and why can you tell they are wrong without doing the division?

COLLECTING AND DISPLAYING DATA

HOMEWORK 3.1

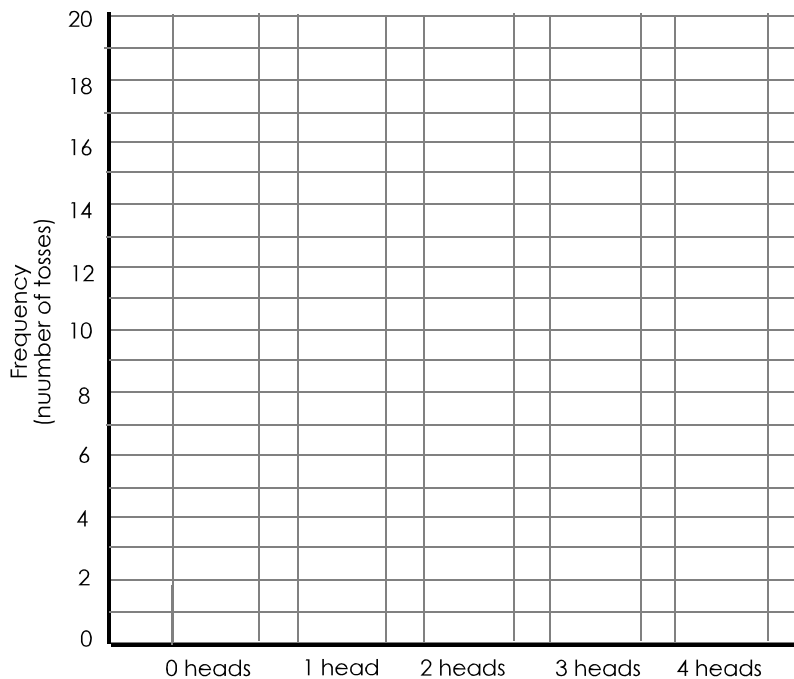
Frequency Tables, Observation Sheets and Making a Bar Chart

Remember to show all your working.

- 1** Four coins were tossed together many times. The number of heads showing on each occasion is listed below.

3	2	1	4	2	1	2	3	1	1
2	0	3	1	3	2	2	4	2	2
1	1	3	4	2	3	0	2	3	2
2	3	1	2	3	2	1	1	2	1

- Make a frequency table for this list.
- 2** Design an observation sheet to record
- a** the number of telephones, including mobiles, in the homes of each pupil in your class
 - b** the number of buses leaving a bus station during each quarter of an hour for a 24-hour period.
- 3** Use your frequency table from question **1** for this question.
- a** How many times were the four coins tossed together?
 - b** What was the most common number of heads when the four coins were tossed together?
 - c** Draw a bar chart for this information. Use a grid like the one below.

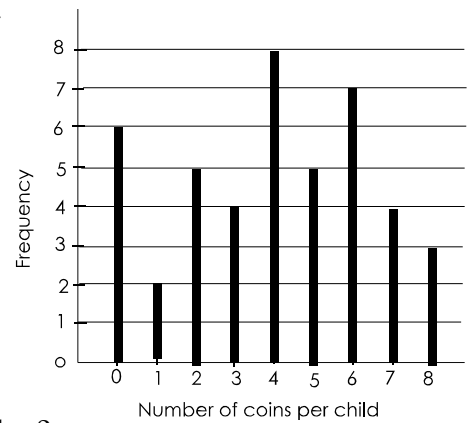


COLLECTING AND DISPLAYING DATA

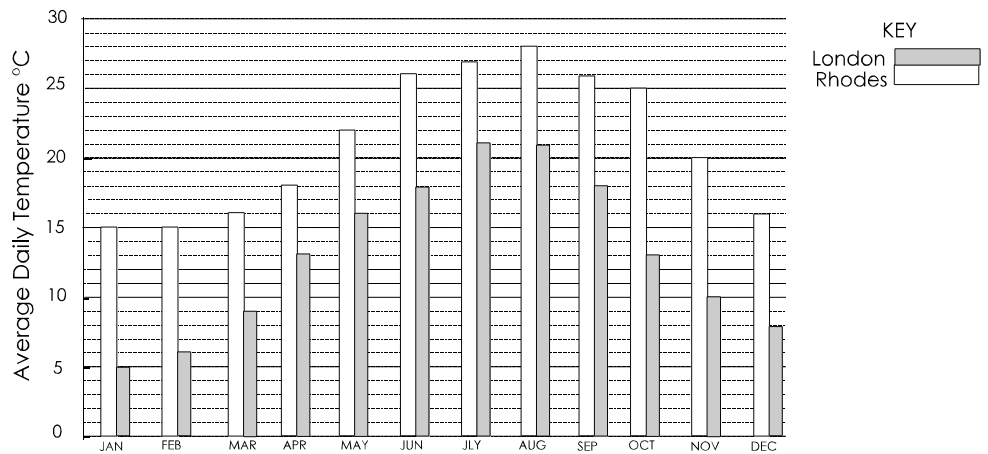
HOMEWORK 3.2
Using Bar Charts
and Pictographs
 Remember to
 show all your
 working.

1 Each child in a group was asked how many coins they had with them. The results are shown on this bar chart.

- a** How many children had exactly five coins with them?
- b** What was the least number of coins a child had?
How many children had this number?
- c** How many children had more than four coins?
- d** What was the most common number of coins?
- e** How many coins were there altogether?



2



This bar chart shows the average maximum daily temperature on the Greek island of Rhodes and in London for one year.

- a** Which month has the highest average daily temperature in Rhodes?
 - b** Which month has the lowest average daily temperature in London?
 - c** How much higher is the average maximum daily temperature in Rhodes than in London during the month of June?
- 3** This pictograph shows the number of new houses built by Pick Bros during the first four years they were in business.



- a** How many houses did they build in the first year?
- b** How many more houses did they build in the fourth year than in the second year?
- c** How many houses did they build altogether?
- d** Do you think the firm is successful? Give a reason for your answer.

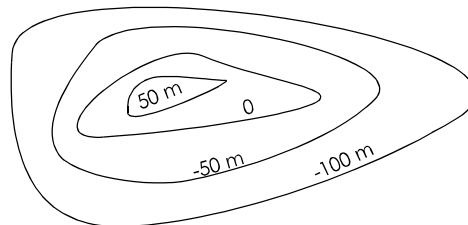
NEGATIVE NUMBERS

HOMEWORK 4.1
Temperature and
Other Contexts

Remember to
show all your
working.

- Write down in words the meaning of these temperatures. **a** -5°C **b** 5°C
- Which is the colder -6°C or 10°C ?
- Write down the higher temperature of each pair.
a 9°C or 7°C **b** -5°C or -7°C
- Put these temperatures in order, with the lowest first.
 3°C , -8°C , 6°C , -10°C , -1°C
- Copy and replace the box with either ' $>$ ' or ' $<$ '. Remember that ' $>$ ' means 'is more than' and that ' $<$ ' means 'is less than'.
a 4°C -4°C **b** -6°C 2°C **c** -8°C -12°C

6



Copy this contour map - you need not copy it exactly.

- Shade the area of sea where the seabed is below 50 m.
 - Use a different colour to shade the area that is above sea level.
- Use positive and negative numbers to write down the time that is
a four seconds before a rocket is launched
b ten seconds after a car stops.

NEGATIVE NUMBERS

HOMEWORK 4.2
Getting Warmer
and Getting
Colder

Remember to
show all your
working.

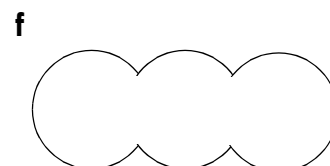
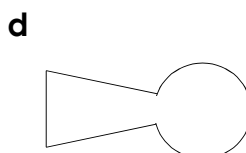
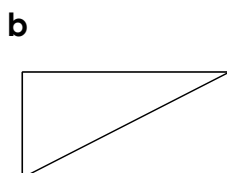
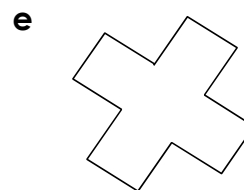
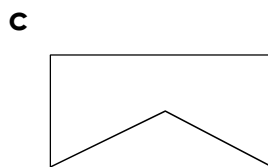
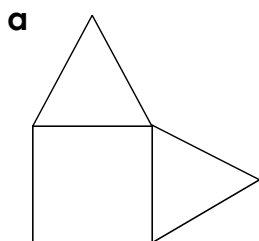
- What temperature is **a** 8°C above -5°C **c** 5°C above 3°C
b 3°C above -4°C **d** 6°C above -3°C
- Find **a** $-3 + 6$ **b** $-7 + 2$ **c** $-4 + 10$ **d** $-8 + 5$
- What temperature is **a** 7°C below 10°C **c** 5°C below 0°C
b 6°C below 3°C **d** 4°C below -5°C
- Find **a** $6 - 9$ **b** $-3 - 8$ **c** $-4 - 11$ **d** $6 - 16$
- What temperature is **a** 7°C above -8°C **c** 6°C below 0°C
b 3°C below -5°C **d** 2°C above -3°C
- Find
a $-5 + 10$ **c** $-4 + 10$ **e** $-7 - 4$
b $6 - 13$ **d** $-3 - 8$ **f** $-12 + 10$

SYMMETRY

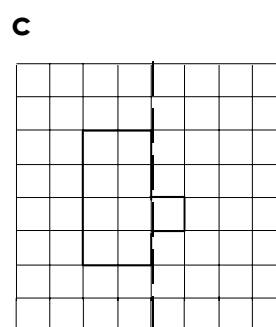
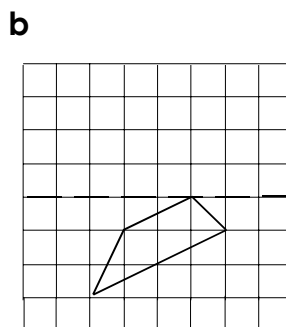
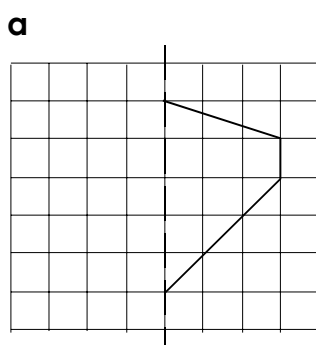
HOMEWORK 5.1
Line Symmetry
and Reflection

Remember to show all your working.

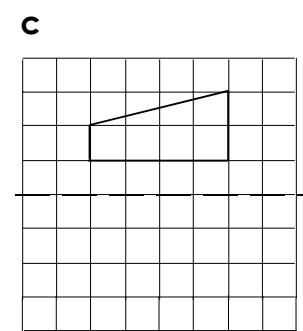
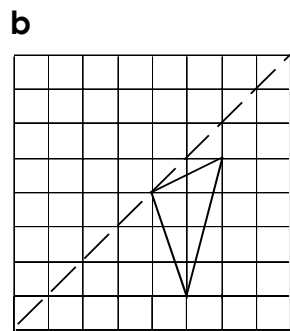
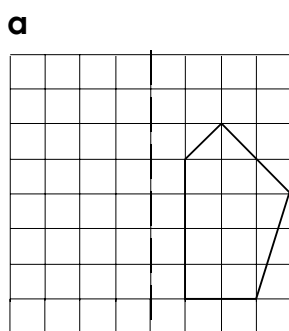
1 Which of these shapes has one or more lines of symmetry and which do not?



2 Copy the following drawings on squared paper and complete them so that the broken line is a line of symmetry.



3 Copy the following drawings on squared paper and draw the reflection of each shape in the mirror line. The broken line is the mirror line.



SYMMETRY

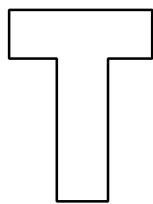
HOMEWORK 5.2

Rotational Symmetry

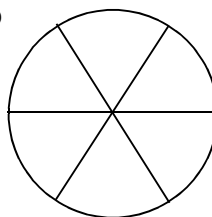
Remember to show all your working

1 Which of these shapes has rotational symmetry?

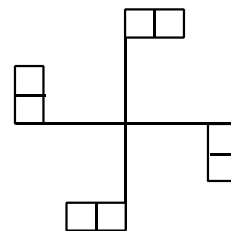
a



b

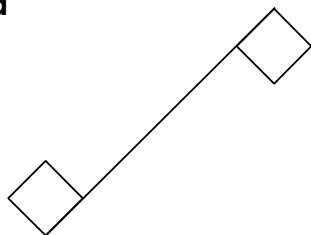


c

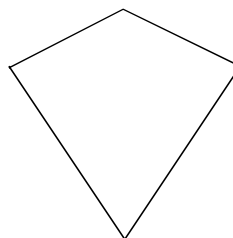


2 Which of these shapes has rotational symmetry but not line symmetry?

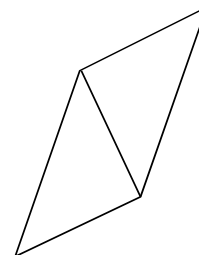
a



b

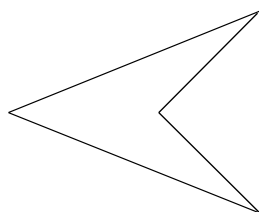


c



3 Which of these shapes has both rotational symmetry and line symmetry?

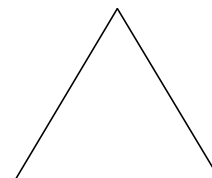
a



b



c

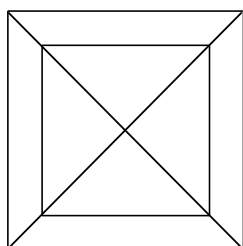


For each shape in questions 4 to 6 write down

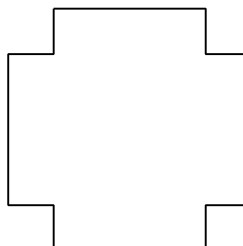
a the number of lines of symmetry

b whether or not the shape has rotational symmetry.

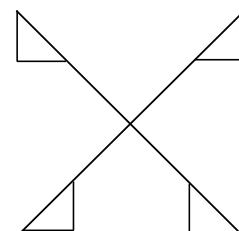
4



5



6



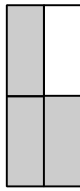
FRACTIONS

HOMEWORK 6.1
The meaning of Fractions.

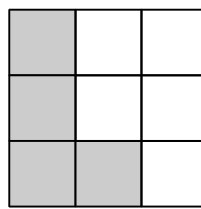
Remember to show all your working.

- 1 In each of the following sketches, write down the fraction of the shape that is shaded, using the smallest numbers where appropriate.

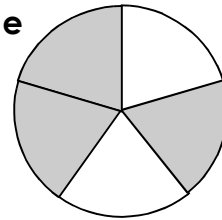
a



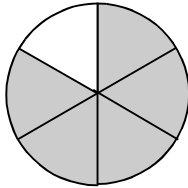
c



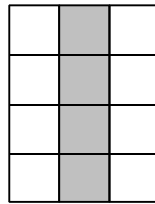
e



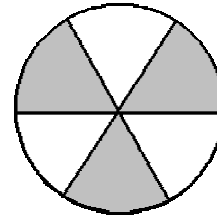
b



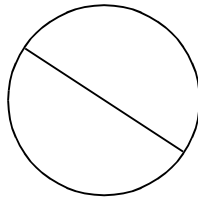
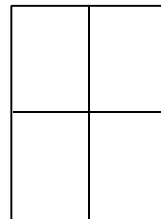
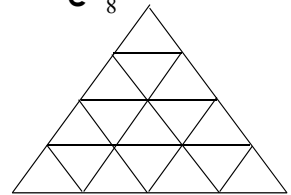
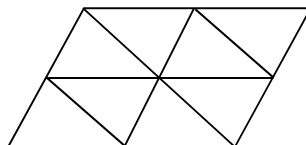
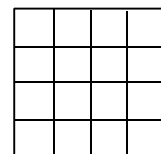
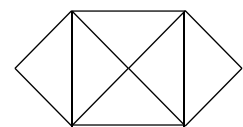
d



f



- 2 Copy these shapes and for each shape, shade the fractions asked for.

a $\frac{1}{2}$ c $\frac{3}{4}$ e $\frac{7}{8}$ b $\frac{3}{8}$ d $\frac{7}{16}$ f $\frac{5}{6}$ 

- 3 Write down first the numerator and then the denominator of each fraction.

a $\frac{5}{7}$ b $\frac{9}{19}$ c $\frac{31}{50}$ d $\frac{4}{15}$

- 4 Write each fraction in figures.

a two-thirds

c seven-eighths

b three-fifths

d seventeen-twentieths.

- 5 Write each fraction in words.

a $\frac{3}{4}$ b $\frac{7}{12}$ c $\frac{5}{8}$ d $\frac{13}{15}$

- 6 Write down the fraction with

a numerator 5 and denominator 6

c denominator 9 and numerator 5

b denominator 7 and numerator 3

d numerator 7 and denominator 8.

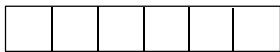
FRACTIONS

HOMEWORK 6.2
Equivalent
Fractions.
Simplifying
Fractions.

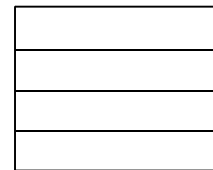
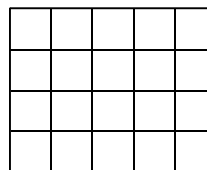
Remember to show all your working.

1 Copy the diagrams onto squared paper and shade them to show that

a $\frac{2}{3} = \frac{4}{6}$



b $\frac{15}{20} = \frac{3}{4}$



2 Draw diagrams similar to those in question 1 to show that

a $\frac{3}{5} = \frac{6}{10}$

b $\frac{10}{15} = \frac{2}{3}$

3 Make equivalent fractions by filling in the blanks.

a $\frac{1}{4} = \frac{5}{\quad}$

b $\frac{1}{2} = \frac{\quad}{20}$

c $\frac{3}{5} = \frac{15}{\quad}$

d $\frac{5}{6} = \frac{\quad}{12}$

4 Write each fraction as the equivalent fraction with a denominator of 20.

a $\frac{1}{2}$

b $\frac{3}{4}$

c $\frac{4}{5}$

d $\frac{7}{10}$

5 Write each fraction as the equivalent fraction with a numerator of 12.

a $\frac{2}{3}$

b $\frac{3}{4}$

c $\frac{4}{5}$

d $\frac{6}{11}$

6 Simplify

a $\frac{4}{8}$

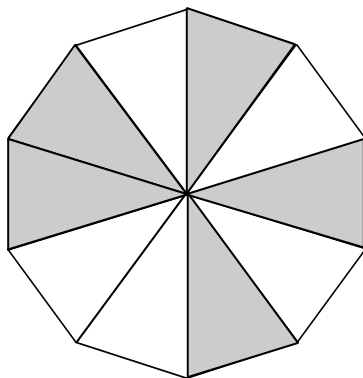
b $\frac{2}{10}$

c $\frac{10}{12}$

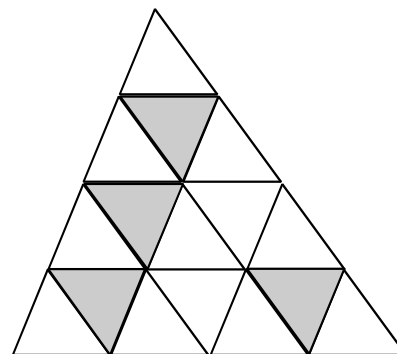
d $\frac{16}{24}$

In questions 7 and 8 find, in its simplest terms, the fraction of each shape that is **a** shaded **b** unshaded.

7



8



PERCENTAGES

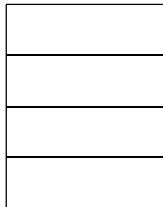
HOMEWORK 7.1
Percentages

Remember to show all your working.

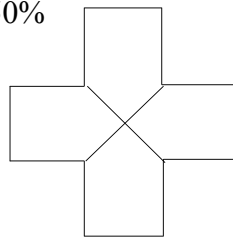
- 1 Write each mark as a percentage
 - a 30 out of 100
 - b 73 out of 100.
- 2 Write as a percentage
 - a $\frac{53}{100}$
 - b $\frac{1}{100}$
 - c $\frac{9}{100}$

3 Copy each figure and shade the percentage asked for.

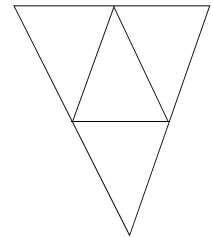
a 25%



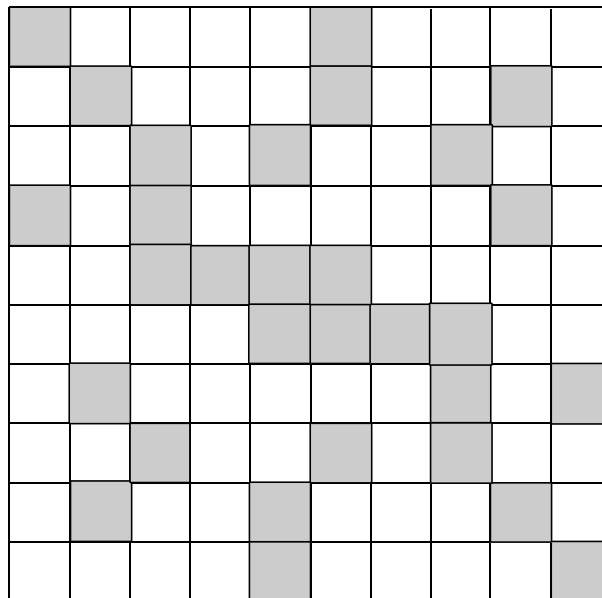
b 50%



c 75%



- 4 By the end of June 45% of the pupils in my class had had their birthday. Express this percentage as a fraction in its lowest terms.
- 5 Copy and complete each sentence.
 - a 3 out of 4 adults is %.
 - b As a fraction 15 out of 40 is
- 6 A school trip was organised for 100 pupils. On the morning of the trip 4 of them failed to turn up.
 - a What percentage failed to turn up?
 - b What fraction of the pupils who said they would go on the trip did so?
- 7 This is a blank for a crossword puzzle.



- a What percentage of the grid is shaded?
- b How many more squares need to be shaded so that 45% of the grid is shaded ?

DECIMALS

HOMEWORK 8.1
Place Value and
Changing
Decimals to
Fractions

Remember to
show all your
working.

- 1 Write each of the following numbers in columns headed

Tens Units Tenths

Don't forget to put the decimal point in the right place.

a 42.5 **b** 5.7 **c** 60.2 **d** 0.8

- 2 What is the value of the figure 4 in each of the following numbers?

a 4.2 **b** 64.7 **c** 42.6 **d** 89.4

- 3 Write these numbers in order of size with the smallest first.

32.4, 34.2, 33.4

- 4 Write each of the following numbers in columns headed

Tens Units Tenths Hundredths

Don't forget to put the decimal point in the right place.

a 21.62 **b** 5.06 **c** 14.92 **d** 73.07

- 5 What is the value of the figure 6 in each of the following numbers?

a 27.56 **b** 36.24 **c** 63.09 **d** 17.61

- 6 Write these numbers in order of size with the smallest first.

5.04, 5.44, 5.40

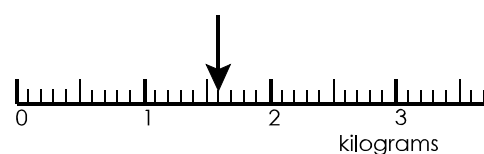
- 7 Express each decimal as a fraction in its simplest form.

a 0.4 **b** 0.75 **c** 0.06 **d** 0.17

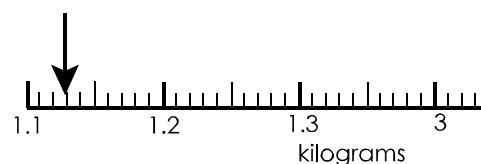
- 8 Write each reading as

i as a decimal **ii** as a fraction, simplified when possible.

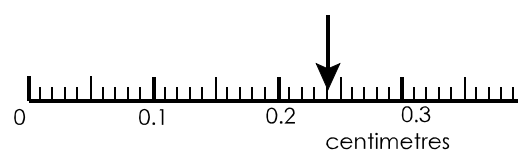
a



b



c

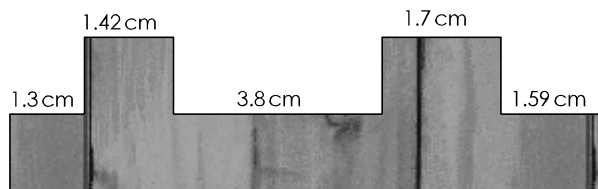


ADDING AND SUBTRACTING DECIMALS

HOMEWORK 9.1 Adding and Subtracting

Remember to show all your working.
Do not use a calculator.

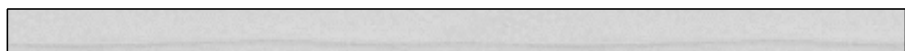
- 1 Find
a $1.4 + 2.3$ **b** $2.5 + 3.8$ **c** $93.4 + 13.7$
- 2 Find
a $6.21 + 1.05$ **b** $24.61 + 15.44$ **c** $3.25 + 1.62 + 4.93$
- 3 How long is this piece of wood?



- 4 Find
a $3.7 - 1.2$ **c** $7.2 - 4.6$ **e** $16.03 - 7.14$
b $8.5 - 6.2$ **d** $15.8 - 9.3$ **f** $9 - 0.06$
- 5 Find
a $3.49 - 0.98$ **c** $12 - 2.88$ **e** $12.1 - 5.85$
b $2 - 0.17$ **d** $52.08 - 12.67$ **f** $73.9 - 4.62$
- 6 This bottle with water in it weighed 450.5 grams,
The empty bottle weighed 124.8 grams.
What did the water weigh?



- 7 Jack measured the lengths of three pieces of wood.
They were 1.63 m, 1.87 m and 2.53 m.



- a** How much longer was the longest piece than the shortest?
b If they were laid end to end how long would they stretch?
c How much shorter is the longest piece than the sum of the two shorter pieces?

ESTIMATING AND USING A CALCULATOR

HOMEWORK 10.1
Rounding
Numbers and
Estimates

Remember to show all your working.

- 1** Give
- a** 78 to the nearest 10 **c** 55 to the nearest 10
b 540 to the nearest 100 **d** 750 to the nearest 100.
- 2** Give
- a** 1650 as an approximate number of hundreds
b 637 as an approximate number of tens
c 3175 as an approximate number of tens
d 5470 as an approximate number of thousands.
- 3** Give
- a** 44.725 g to the nearest gram
b 13.089 cm to the nearest centimetre
c 0.76 m to the nearest metre
d 1.092 kg to the nearest kilogram.
- 4** For each calculation, first estimate, then work out the accurate answer.
- a** $503 + 718$ **c** $15.24 - 12.88$
b $35 + 19 + 32$ **d** $349 - 77.7$
- 5** In these questions some of the answers are wrong. Find which ones are likely to be wrong by working out rough answers.
- a** $77 - 49 = 68$ **c** $9.23 - 3.48 = 5.75$
b $88 + 57 = 145$ **d** $12.05 - 6.93 = 5.12$

ESTIMATING AND USING A CALCULATOR

HOMEWORK 10.2
Using a
Calculator

Remember to show all your working.

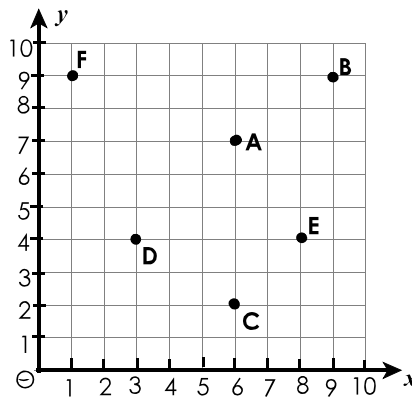
- In this exercise estimate the answer, then use a calculator to find the correct answer.
- 1** Find
- a** $834 + 264$ **c** $4214 + 3729$ **e** $3942 - 1773 + 2041$
b $1524 - 955$ **d** $518 - 347 + 2918$ **f** $8261 - 4317 - 2604$
- 2** Find
- a** $6.47 + 2.19$ **c** $16.92 - 9.34$ **e** $6.24 + 8.066 + 3.142$
b $10.04 - 7.36$ **d** $8.315 - 5.497$ **f** $9.307 - 6.008 - 1.731$
- 3** Find
- a** 293×47 **c** 96×84 **e** 82×1249
b 53×931 **d** 5321×45 **f** 704×394
- 4** **a** Add three hundred and fifty-seven to five hundred and forty-nine.
b Subtract five hundred and twenty-three from eight hundred and fifty-five.
c Multiply two hundred and forty-nine by thirty-seven.

CO COORDINATES

HOMEWORK 11.1 1

Coordinates of a Point and Map Grids

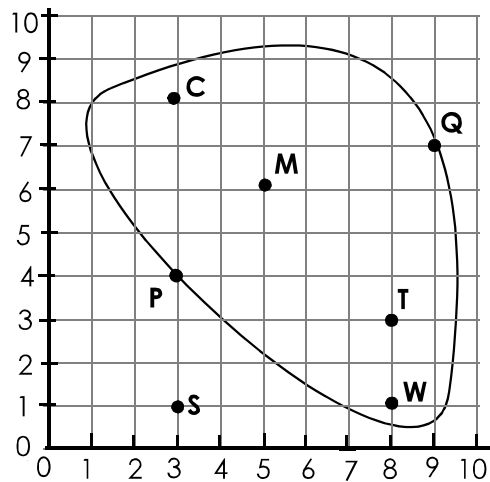
Remember to show all your working.



- a Write down the x -coordinate of i A ii D
- b Write down the y -coordinate of i B ii E
- c Write down the coordinates of i C ii F

- 2 For this question draw a set of axes like those in question 1. Mark the points A(2, 2), B(7, 2), C(7, 9) and D(2, 9) on your grid. Join A to B, B to C, C to D and D to A. What is the name of the figure ABCD? Does it have any lines of symmetry?

3



This map shows an island drawn on squared paper. The position of different places is marked by a dot and a letter.

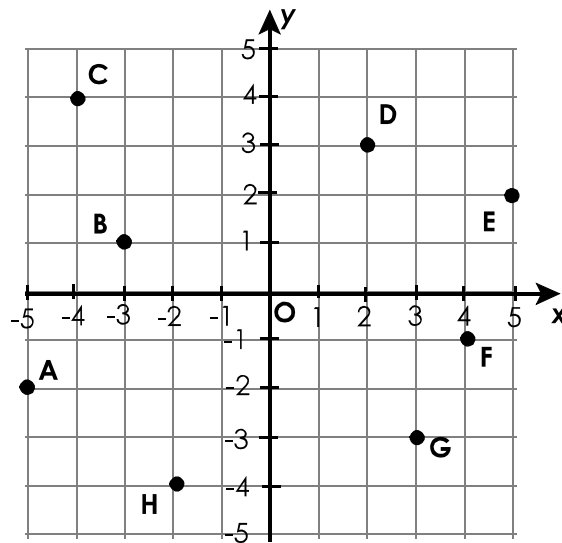
- a How many squares are there on the map between i the port (P) and the camp (C) ii the tent (T) and the well (W)?
- b Write down the grid reference of the highest point on the island (M).
- c Give the grid reference of the other place, apart from P, which lies on the coast.
- d Write down the letter which represents a ship at sea.
- e There is a direct path from the camp to the highest point on the island, and a resting point (R) half-way between them. Write down the grid reference of R.

COORDINATES

HOMEWORK 11.2 1

Negative Coordinates

Remember to show all your working.



- a** Write down the x -coordinate of **i** B **ii** D
- b** Write down the y -coordinate of **i** C **ii** H
- c** Write down the coordinates of **i** A **ii** C **iii** G **iv** F
- 2** Draw a grid like the one in question 1.
Mark the points $A(4, 1)$, $B(2, -5)$, $C(-4, -3)$ and $D(-2, 3)$.
Join the points in order and join D to A.
What is the name of this shape?
- 3** For this question draw your own set of axes on 5 mm squared paper.
Mark a scale on each axis from -10 to $+10$ like the grid in question 1.
Mark the points A and B and find the distance, in centimetres, between them if the coordinates of the points are
- a** $A(-5, -5)$, $B(-5, 3)$ **c** $A(-3, 5)$, $B(-3, -6)$
- b** $A(-1, 5)$, $B(-9, 5)$ **d** $A(4, -2)$, $B(-3, -2)$.
- 4** $A(4, 3)$, $B(4, -3)$ and $C(-2, -3)$ are three corners of a square ABCD.
Mark the points A, B and C on a grid like the grid in question 1.
Find the point D.
Give the coordinates of D.

UNITS OF LENGTH AND MASS

HOMEWORK 12.1 Length and Mass

Remember to show all your working.

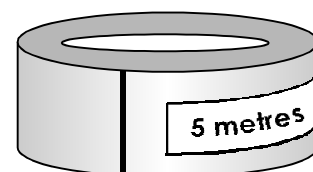
- Use your ruler to draw lines of length
a 6 cm **b** 35 mm **c** 62 mm **d** 4 cm
 .
- Estimate the length, in centimetres, of each line.
a _____
b _____
 Now use a ruler to measure each line.
- Convert each length to the unit in brackets.
a 8 cm (mm) **b** 4 m (cm) **c** 7 km (m) **d** 1 km (cm)
- Choose the most likely answer for the length of a mini-bus:
A 50 m **B** 250 cm **C** 7 m **D** 3500 mm
- Convert each weight to the unit in brackets.
a 6 kg (g) **b** 3 t (kg) **c** 4 g (mg)
- Choose the most likely answer for the weight of a pen:
A 5 kg **B** 0.5 tonnes **C** 10 g **D** 500 g

UNITS OF LENGTH AND MASS

HOMEWORK 12.2 Adding and Subtracting Metric Quantities

Remember to show all your working.

- Find, expressing your answer in the units in brackets
a $10\text{ mm} + 40\text{ cm}$ (mm) **c** $9\text{ cm} - 63\text{ mm}$ (mm)
b $3\text{ m} + 750\text{ cm}$ (cm) **d** $7\text{ m} - 524\text{ cm}$ (cm)
- Find, expressing your answer in the units in brackets
a $2\text{ kg} - 840\text{ g}$ (g) **c** $40\text{ g} - 250\text{ mg}$ (mg)
b $1\text{ t} - 780\text{ kg}$ (kg) **d** $3\text{ t} + 2400\text{ kg}$ (kg)
- Choose sensible units for your answers to
a $4\text{ cm} + 15\text{ mm}$ **c** $3\text{ kg} - 750\text{ g}$ **e** $2\text{ m} - 40\text{ cm}$
b $1\text{ km} - 500\text{ m}$ **d** $1\text{ kg} + 250\text{ g} + 50\text{ g}$ **f** $30\text{ cm} - 250\text{ mm}$
- Find the total weight, in grams, of 1 kg of sugar, 500 g of pasta and 3 kg of vegetables.
- Meg cuts two pieces off this roll of tape.
 One piece is 125 cm long and the other piece is 86 cm long.
 What length of tape is left?



FORMULAS

HOMEWORK 13.1 Using and Constructing Formulas

Remember to show all your working.

- 1 Explain, in words and symbols, how to get the bottom number from the top number.

a

5	12	19	26	33
1	8	15	22	29

b

4	7	10	13	16
1	4	7	10	13

- 2 Write down a formula, in words and symbols, that connects the two given quantities.

a The length of a piece of wood, in centimetres, is the length of the piece, in inches, multiplied by 2.54.

b The cost of a number of similar CDs is the cost of one CD multiplied by the number of CDs.

c The perimeter of a square is four times the length of one of its sides.

- 3 **a** The cost of sending letters by first class post is 28 p each. Write down a formula, in words and symbols, that connects the cost of a number of First Class stamps and the cost of one First Class stamp.

b Use the formula you found in part **a** to find the cost, in pence, of twelve First Class stamps.

- 4 **a** The cost using Second Class post is 20 p for each letter. Write down a formula, in words and symbols, that connects the cost of a number of Second Class stamps and the cost of one Second Class stamp.

b Use the formula you found in part **a** to find the cost, in £s, of eight Second Class stamps.

NUMBER PATTERNS

HOMEWORK 14.1 1 This square of sixteen numbers is taken from a calendar.

Addition and Multiplication Patterns.

Types of Number.

Remember to show all your working.

1	2	3	4
8	9	10	11
15	16	17	18
22	23	24	25

- a** Add the numbers in the opposite corners of the large square. What do you notice?
- b** Add the numbers in the opposite corners of the grey square. How does your answer compare with the answer to part **a**?
- c** Find the sum of the four numbers in the first row. Next find the sum of the four numbers in the second row. Now find the difference between the two sums.
- d** Find the difference between the sum of the numbers in the second row and the sum of the numbers in the third row. How does your answer compare with the answer to part **c**?
- 2 Express each of the following numbers as the product of two factors in as many ways as you can.
- a** 16 **b** 24 **c** 60 **d** 36
- 3 **a** Write down all the multiples of 3 between 14 and 31.
b Write down all the multiples of 5 between 39 and 61.
c Write down all the multiples of 11 between 30 and 70.
- 4 Look at these numbers:
 4, 5, 7, 9, 11, 12, 15, 16, 23, 24, 25.
- a** Which of these numbers are square numbers?
b Which of these numbers are prime numbers?
c Which of these numbers are exactly divisible by 3?
- 5 The digit sum of a number is the sum of its digits. If this is more than nine, add the digits of the answer and repeat until the sum is nine or less. Find the digit sum of each of the following numbers.
- a** 924 **b** 127 **c** 634 **d** 762 **e** 345 **f** 4095
- Which of the numbers are exactly divisible by 3?
 Explain how you know.

NUMBER PATTERNS

HOMEWORK 14.2
Sequences and
Other Number
Patterns

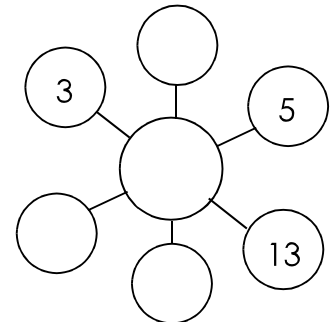
Remember to show all your working.

- 1** Write down the first four terms of the sequence if
- a** you start with 4 and add 7 each time
 - b** you start with 5 and add 6 each time
 - c** you start with 1, 3 and get the next number by multiplying the previous two numbers together.
- 2** In this question give the instruction necessary to generate the sequence and write down the next three terms.
- a** 5, 14, 23, 32, ... **c** 256, 128, 64, 32, ...
 - b** 50, 44, 38, 32, ... **d** 8000, 4000, 2000, 1000, ...

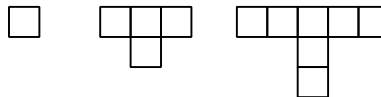
- 3 a** What is the special number in this magic square?
- b** Copy the magic square and fill in the missing numbers.

6	5	10
		3

- 4 a** In this diagram the sum of the numbers in each diagonal is 40. What is the number in the centre. Copy the diagram and fill in the other missing numbers, using each of the odd numbers from 3 to 13 once.
- b** Copy the diagram again but leave the circles blank. Put 12 in the centre circle and find positions for the odd numbers from 3 to 13 so that the total along every line is 28.



- 5 a** Draw the next two diagrams in this pattern.



- b** Copy and complete this table, without drawing any more squares.

Pattern Number	1	2	3	4	5	6	7
Number of squares	1	4					

- c** Explain how you found the number of squares for pattern numbers 6 and 7.

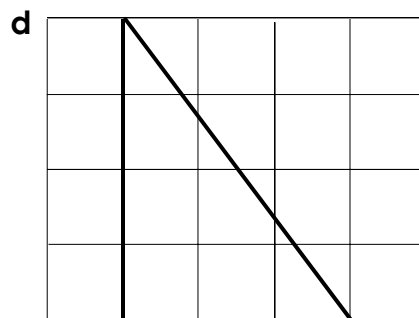
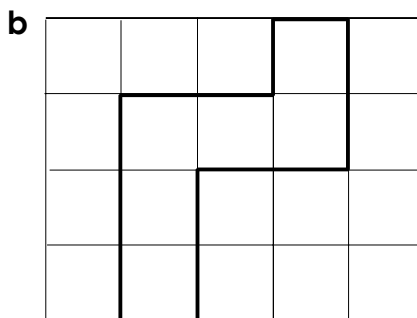
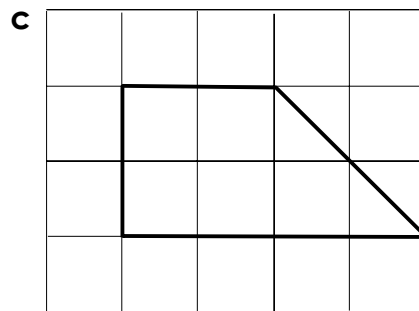
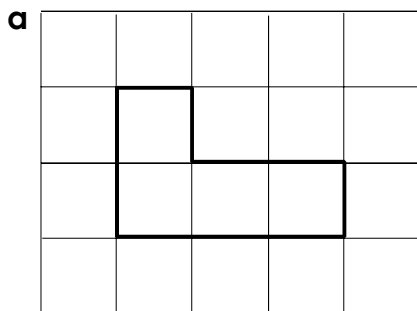
AREA AND PERIMETER

HOMEWORK 15.1 1 These shapes are drawn on 1 cm squared paper.

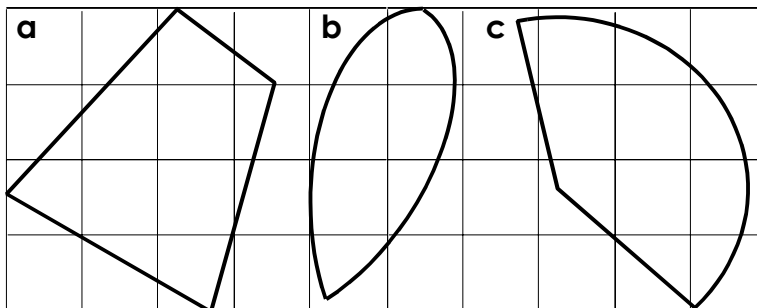
Area

Remember to show all your working.

Find the area of each shape.



2 These shapes are drawn on 1 cm squared paper. By counting squares, estimate the area of each shape.



3 This shape is drawn on 5 mm squared paper.

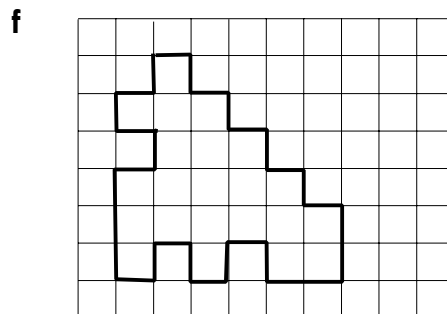
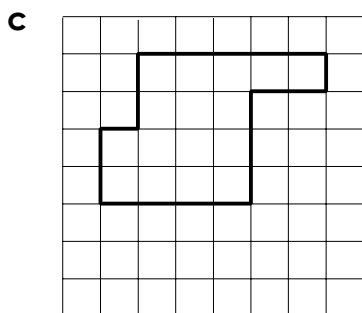
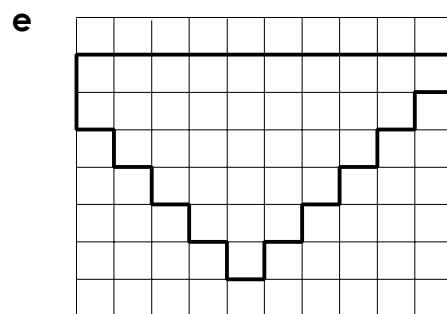
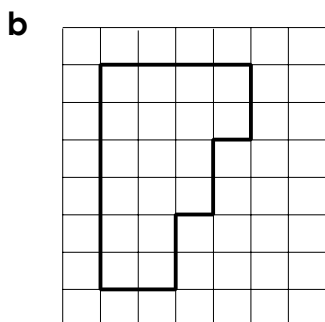
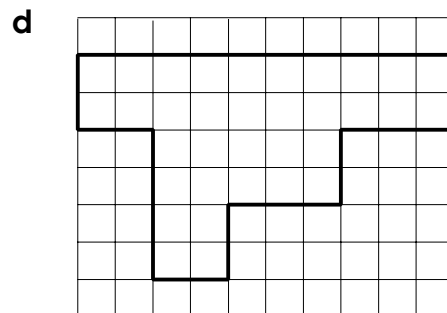
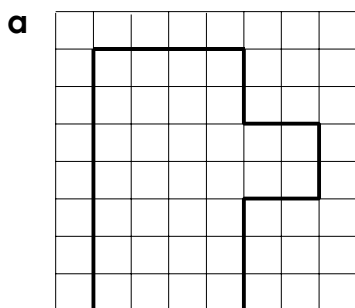


- a** How many squares are covered by the shape?
- b** How many 5 mm squares make one square with an area of 1 cm²?
- c** Use your answers to parts **a** and **b** to estimate the area of the shape in square centimetres.

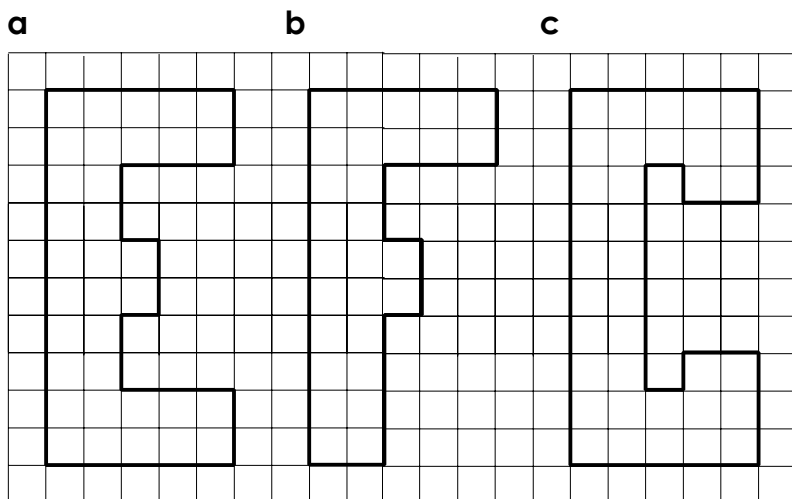
AREA AND PERIMETER

HOMEWORK 15.2 1 Find the perimeter of each shape.
They are drawn on 5 mm squared paper.

Perimeter
Remember to show all your working.



2 For each shape find **i** the perimeter **ii** the area.
The shapes are drawn on 5 mm squared paper.



ORGANISING AND SUMMARISING DATA

HOMEWORK 16.1
Mode and Median

Remember to show all your working.

1 For these sets of values, there may be one mode, more than one mode or no mode. Give the mode if there is one. If there is more than one mode give them all.

a Judy’s marks in her last five geography tests were:

6, 7, 6, 8, 5

b The numbers of apples in seven 2 kg bags are:

9, 6, 8, 6, 7, 5, 8

c The ages of 10 cars in a car park are:

1 yr, 3 yr, 7 yr, 4 yr, 5 yr, 3 yr, 2 yr, 4 yr, 6 yr, 3 yr

2 This list shows the number of goals scored by the school soccer team in the matches they played last season.

2 3 1 1 0 5 0 1 1 1 2 0 1 1 3
1 0 2 0 4 0 1 2 3 0 1 4 2 0 2

a How many matches did they play?

b Make a frequency table for this data.

c Find the mode.

3 In this question find the median for each set of values.

a Tom’s scores in five tests were: 6, 7, 7, 8, 9

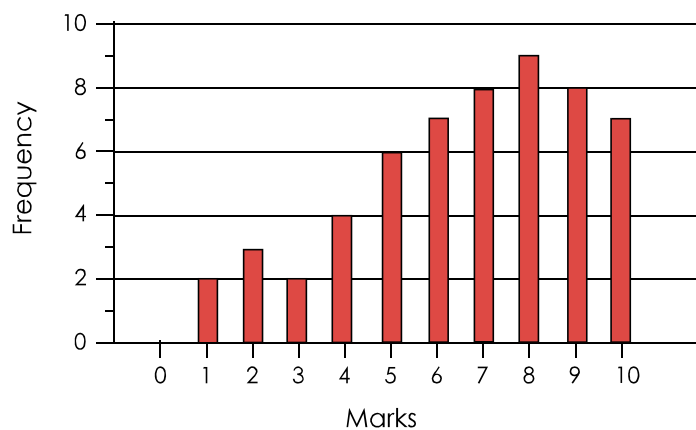
b The amounts spent by 6 pupils at lunch time were:

£1.35, £3.10, £2.65, £2.85, £1.95, £2.05

c The weights of eight apples are:

146 g, 120 g, 124 g, 155 g, 138 g, 160 g, 168 g, 145 g

4 This bar chart shows the information from a maths test.



a What was the lowest mark scored?

b How many pupils took the test?

c What is the mode?

d What is the median mark?

ORGANISING AND SUMMARISING DATA

HOMEWORK 16.2
Grouping Data

Remember to show all your working.

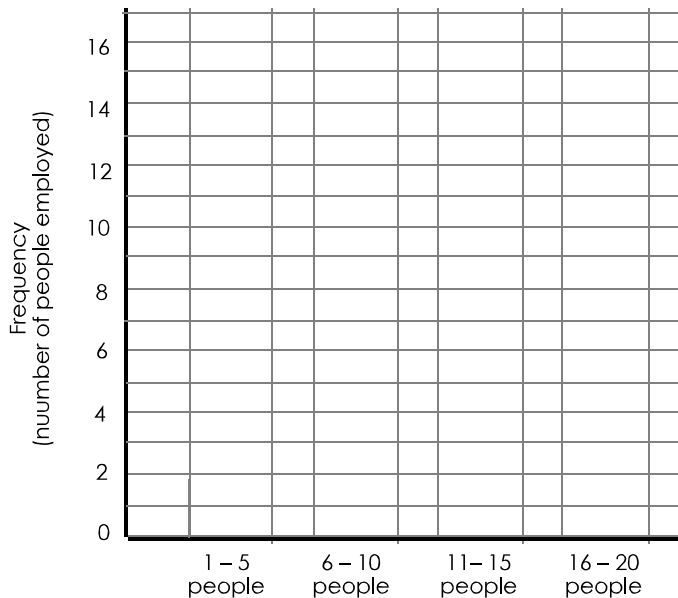
1 This list gives the number of people employed by the businesses in a small town.

10 5 12 7 9 3 6 10 2 5
 5 4 1 4 13 18 15 4 13 7
 6 17 5 6 2 7 14 6 17
 8 7 11 12 10 5 7 9 12

- a How many businesses are there in the town?
- b Copy and complete this frequency table.

Number of people employed	Tally	Frequency
1 - 5		
6 -10		
11 -15		
16 - 20		
Total		

- c Draw a bar chart to illustrate the information in the table.
Use a grid like the one below.



- d How many businesses employ more than 10 people?
- e The Employment Agency for the town reported that the modal number of people employed was 7.
Is this true? Justify your answer.
- f How many businesses employ 15 people or more? (Be careful!)

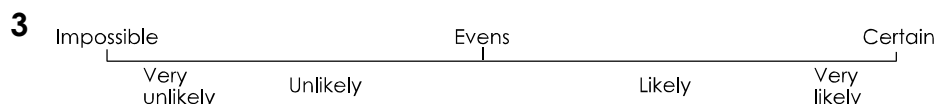
PROBABILITY

HOMEWORK 17.1 Chance and Outcomes

Remember to show all your working.

- 1 Decide which of the following events is impossible, certain to happen or may happen.
 - a The sun will rise tomorrow.
 - b If you roll a dice it will score 1.
 - c You will eat a bag of crisps tomorrow.
 - d You will grow to be 3 metres tall.

- 2 How many possible outcomes are there for each of the following experiments? In each case write down the list of all possible outcomes.
 - a Choosing one umbrella from one red umbrella, one black umbrella, one blue umbrella and one brown umbrella.
 - b Taking one nut from a box holding a brazil nut, a walnut, a hazel nut, a cashew nut and a peanut.
 - c Choosing one number from the first six prime numbers.



Copy this scale.

Use an arrow to mark, roughly, the place on the scale that measures the chance of the event happening.

Assume that any of the outcomes is as likely to happen as any other.

- a Drawing a club from a full pack of ordinary playing cards.
 - b Taking a 20p coin out of a bag full of 20p coins.
 - c Choosing a vowel from the word HYMN.
-
- 4 Helen watched shoppers coming in and going out of a particular door to a supermarket. This is a record of what she observed.
E means that a person went in and L that a person left.
L, E, E, L, E, L, L, L, E, L, E, L, L, E, L, E, L, L, E, E.
 - a How many people went through the door while Helen was watching?
 - b What, roughly, is the chance that the next person going through the door is leaving the supermarket?
 - c Which of these words best describes the probability that the next person using the door will come into the supermarket?

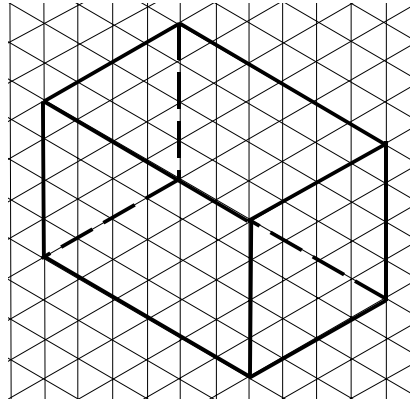
Even chance, Unlikely, Probably

SOLIDS

HOMEWORK 18.1 1

Drawing and Making Cubes and Cuboids

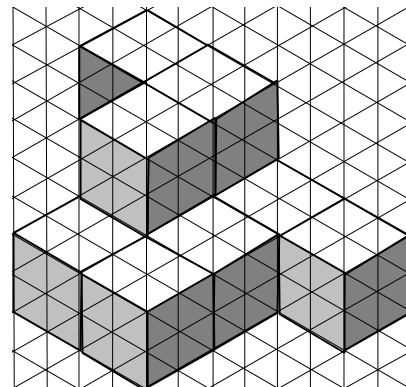
Remember to show all your working.



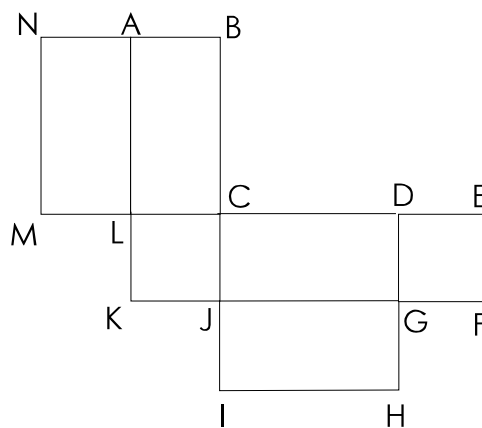
The diagram shows a cuboid drawn on 5 mm isometric paper. This means that the edge of every small triangle is 5 mm long.

- a How many of the faces of this cuboid are
 - i squares
 - ii rectangles?
- b What are the measurements of this cuboid?
- c What is the advantage of this kind of drawing?

- 2 How many loose cubes are there in this stack?



- 3



This net will make a cuboid measuring $4\text{ cm} \times 2\text{ cm} \times 2\text{ cm}$.

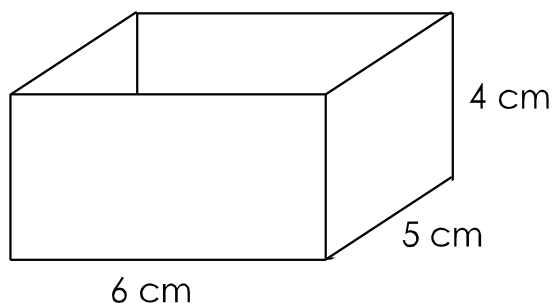
- a What is the distance
 - i from M to E
 - ii from B to J?
- b Which edge meets
 - i CD
 - ii JK?
- c Which other corners meet at M?

SOLIDS

HOMEWORK 18.2 1

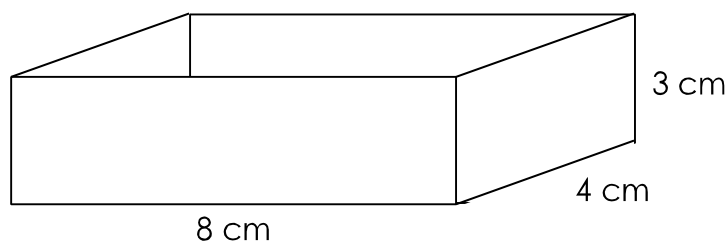
Volume and Capacity

Remember to show all your working.



- a** How many 1 cm cubes are needed to cover the base of this box?
b How many 1 cm cubes are needed to fill the box?

c



Neil takes all the cubes out of the first box and begins to put them into this second box.

Are there enough cubes to fill the second box?

If there are, how many are left over?

If there are not how many more are needed?

2 Express

- a** 30 litres in cm^3 **b** 58 000 cm^3 in litres.

3 How many litres of water will fill a rectangular tank measuring $80 \text{ cm} \times 50 \text{ cm} \times 30 \text{ cm}$?

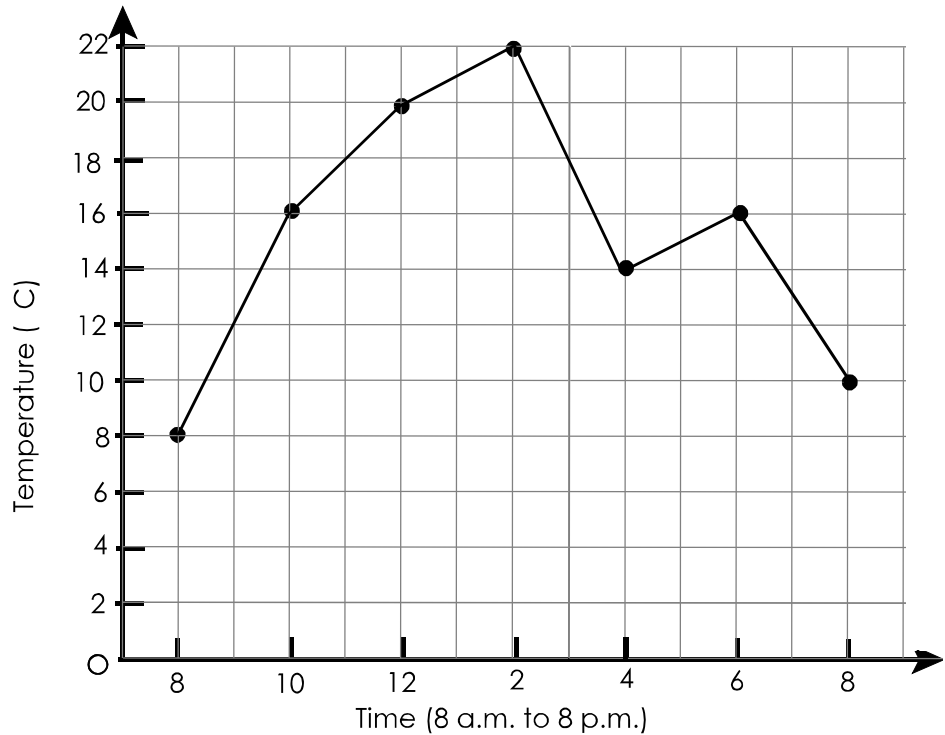
4 Annie bought a 5 litre container of milk and several rectangular cartons measuring $10 \text{ cm} \times 5 \text{ cm} \times 2.5 \text{ cm}$.

- a** Find the capacity of one carton.
b Express your answer to part **a** as a fraction of 1 litre, giving your answer in its lowest terms.
c How many cartons can Annie fill using 1 litre of milk?
d How many cartons can be filled from Annie's container?

LINE GRAPHS

HOMEWORK 19.1 Reading a Line Graph

Remember to
show all your
working.



The graph shows the temperature, in degrees Celsius, in Jamestown one day this year.

- 1 At what time was the temperature greatest?
- 2 What was the lowest temperature recorded?
- 3 What was the highest temperature recorded?
- 4 At what time was the temperature least?
- 5 Between which two times did the temperature decrease most?
- 6 Between which two times did the temperature increase least?
- 7 Can you tell from the graph what the temperature was at 1 p.m.?
Give a reason for your answer.
- 8 Can you say that at sometime between 8 a.m. and 8 p.m. the temperature was 9°C ?
Give a reason for your answer.
- 9 Can you be certain that the temperature never dropped below 8°C ?
Give a reason for your answer.

LINE GRAPHS

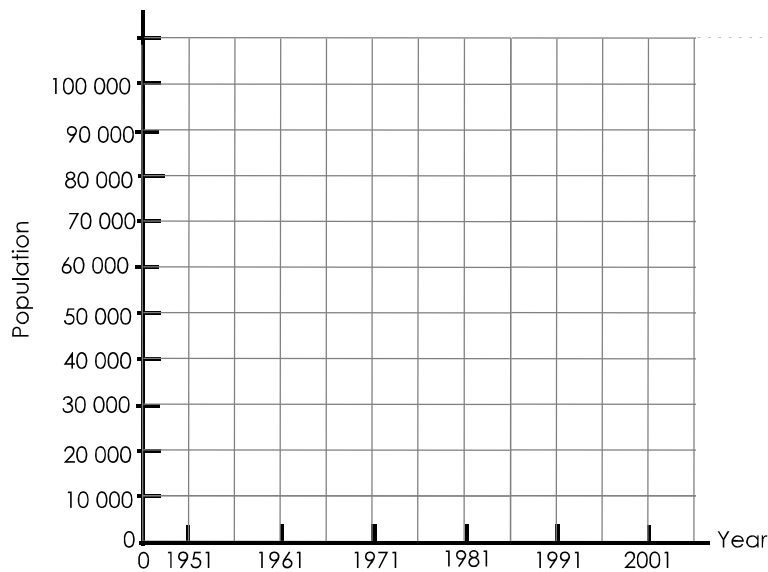
HOMEWORK 19.2 Drawing a Line Graph

Remember to
show all your
working.

The table shows the population of Newlands at 10-year intervals from 1951 to 2001.

Date	1951	1961	1971	1981	1991	2001
Population	30 000	40 000	60 000	90 000	100 000	80 000

- Use a grid like this one to plot the points that represent the information in the table.



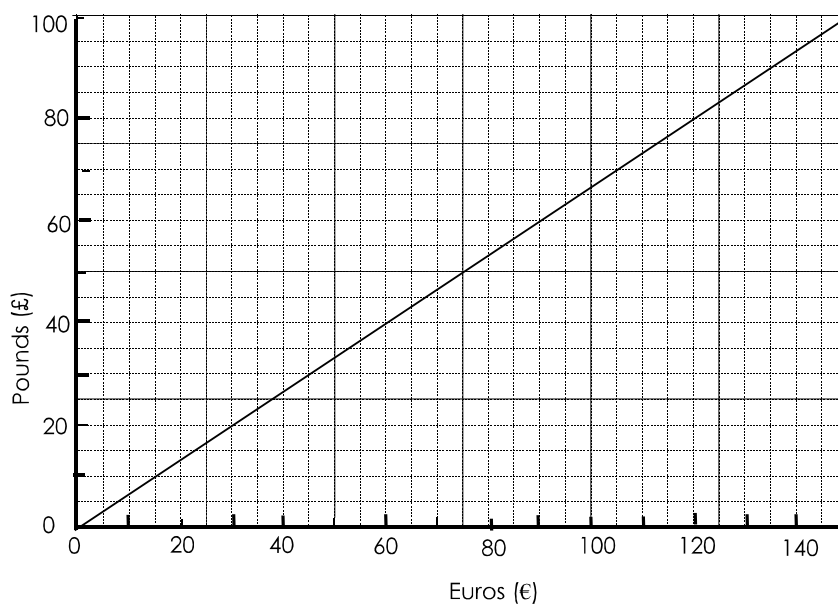
- Join the points in order with straight lines.
- What was the increase in population from 1961 to 1971?
- In which 10-year period did the population change most?
Was this an increase or a decrease?
- Over which 20-year period did the population change most?
Was this an increase or a decrease?
- During one 10-year period (1951-1961, 1961-1971, etc) a large factory opened in the area but some years later it closed.
 - During which 10-year period do you think it opened?
 - During which 10-year period do you think it closed?
Give reasons for your answers.

LINE GRAPHS

HOMEWORK 19.3

Reading a
Conversion
Graphs

Remember to
show all your
working.



This graph converts between pounds sterling (£) and euros (€).
Use the graph to answer the following questions.

- 1 Convert
 - a £100 to euros
 - b €100 to pounds sterling.
 - c Use your answer to part a to find the value of £1 in euros.
 - d Use your answer to part b to find the value of €1 in pounds sterling.

- 2 Ken went to Brussels on the train for the day.
He changed £60 into euros. How many euros did he get?

- 3 When Sally returned from holiday she changed €35 into pounds.
How many pounds did she get?

- 4 Explain how you could use this graph to convert
 - a £850 into euros
 - b €600 into pounds.

TIME AND MONEY

HOMEWORK 20.1 1

Time

Remember to show all your working.

May							June						
M	T	W	T	F	S	S	M	T	W	T	F	S	S
1	2	3	4	5	6	7				1	2	3	4
8	9	10	11	12	13	14	5	6	7	8	9	10	11
15	16	17	18	19	20	21	12	13	14	15	16	17	18
22	23	24	25	26	27	28	19	20	21	22	23	24	25
29	30	31					26	27	28	29	30		

This is part of a calendar for the year 2000.

Use it to answer these questions.

- a How many Fridays are there in June?
 - b How many Mondays are there in May?
 - c What day of the week was
 - i May 16th
 - ii 4.6.2000
 - iii 06.06.00?
 - d What was the date of the last Saturday in May?
 - e George went on holiday on the last Saturday in May and returned on the second Wednesday in June.
How many nights was he away?
 - f Elinor went on holiday on 23rd May for 6 nights.
On what date and day of the week did she return?
- 2 Find the period of time between
 - a 8.30 a.m. and 1.30 p.m. the same day
 - b 9.30 p.m. and 6.30 a.m. the next day
 - c 4.15 p.m. and 6.25 a.m. the next day.
 - 3 Give these times on the 24-hour clock.
 - a 4.20 a.m.
 - b 8.35 p.m.
 - c midnight
 - d 6.45 p.m.
 - 4 The given times have been read from a 24-hour clock.
Give the times on a 12-hour clock, using a.m. and p.m.
 - a 08.20
 - b 14.45
 - c 00.10
 - d 20.12
 - 5 Find the period of time between
 - a 07.35 and 14.50 the same day
 - b 10.20 and 09.40 the following day.
 - 6 A flight from London to Prague takes 2 hours 20 minutes.
It arrives in Prague at 14.10 London time.
What time did it leave London?

TIME AND MONEY

HOMEWORK 20.2 This poster gives the charges at a Municipal Golf Course.

Money

Remember to show all your working.

Frimbourne Council Lake Golf Course	
ADULT	£8
YOUTH (under 18)	£5
Hire of Clubs	£4
All charges apply per round	

- 1 What is the total cost for three women to play one round if they have their own clubs?
- 2 How much does it cost two 12-year-old boys to play one round if one of them has to hire a set of club?
- 3 What is the total cost for a foursome of two men and two women to play one round if one man and one woman each have to hire a set of clubs?
- 4 Tom, Dick and Harry go for a day's golf.
All three play one round in the morning but Dick is too tired to play a round in the afternoon.
Harry doesn't have his own clubs so has to hire clubs in the morning but is able to borrow Dick's clubs for the afternoon .
How much does the day cost them altogether in golfing charges?
- 5 Dee and Raj travel to the golf course by bus from their home.
The fare is £1.20 per adult and 80p per child under 16 each way.
Dee is 18 and Raj is 15.
They play one round of golf and they both hire clubs.
Dee and Raj then return home by bus.
How much does their day out cost in total?

ANSWERS

- 1.1**
1a 19 **b** 115 **c** 703 **d** 5067
2a forty eight
b five hundred and three
c two hundred and seventy four
d fifty two thousand, four hundred
3a 4 units **b** 4 hundred **c** 4 tens
d 4 thousand
4a 602 **b** 1084 **c** 5207
5a 257, 527, 572 **b** 92, 96, 103
6a 852 **b** 85
c 258, 285, 528, 582, 825, 852
1.2
1 3 **2a** 14 **b** 14 **c** 13 **d** 15
3a 18 **b** 26 **4** 18, 22, 26
5a 61 **b** 91 **c** 101
6a 77 **b** 161 **c** 670
7a 294 **b** 582 **c** 500 **8a** 81 **b** 106

- 1.3**
1a 8 **b** 7 **c** 13 **2** 68, 64, 60, 56
3a 31 **b** 34 **c** 209
4a 23 **b** 27 **c** 99 **5** 493
6 Across 1: 70, 2: 364, 4: 171, 5: 49
 Down 1: 747, 3: 619

- 2.1**
1a 35 **b** 21 **c** 40 **d** 56 **e** 81
2a 9 **b** 6 **c** 8 **d** 6 **e** 6, 7
3a 252 **b** 576 **c** 594
4a 360 **b** 183 **c** 456 **d** 576 **e** 2891
5a 105 **b** 84 **c** 96 **d** 120 **e** 180
f 525

- 2.2**
1a 4 **b** 3 **c** 9 **d** 5 **e** 7 **2a** 8, 8, b, 8, 8
3a = **b** < **c** = **d** > **e** < **f** >
4a 6 **b** 7 **5a** 5r2 **b** 8r3 **c** 7r4
6a 87 **b** 105 **c** 92r4 **d** 202r6
7 63 p

- 2.3**
1a 80 **b** 7000 **c** 270 **d** 8200 **e** 3100
f 5600
2a 960 **b** 3060 **c** 13800 **d** 2080
e 61000 **f** 48800
3 52
4a 50 **b** 74 **c** 1500 **d** 9 **e** 18 **f** 240
5 2500÷10, 500÷10, 15×10, 12×100
6 340 722
8 A and C; e.g. answer is smaller than 3600.

3.1

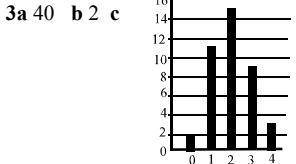
1	no. of heads	0	1	2	3	4
	Frequency	2	11	15	9	3

2a

no of phones	0	1	2	3	4	5	6	7+

b

Time	00.00-00.15	00.15-00.30	23.45-00.00
no. of buses			



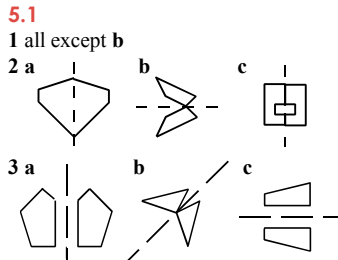
- 3.2**
1a 5 **b** 0, 6 **c** 19 **d** 4 **e** 44
2a August **b** January **c** 8°C
3a 4 **b** 7 **c** 43 **d** e.g. yes: more houses built each successive year.

- 4.1**
1a 5°C below freezing
b 5°C above freezing
2a -6°C **3a** 9° **b** -5°
4 -10°C, -8°C, -1°C, 3°C, 6°C
5a > **b** < **c** >

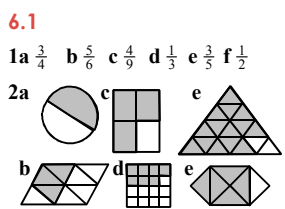


7a -4 sec **b** +10 sec

- 4.2**
1a 3°C **b** -1°C **c** 8°C **d** 3°C
2a 3 **b** -5 **c** 6 **d** -3
3a 3°C **b** -3°C **c** -5°C **d** -9°C
4a -3 **b** -11 **c** -15 **d** -10
5a -1°C **b** -8°C **c** -6°C **d** -1°C
6a 5 **b** -7 **c** 6 **d** -11 **e** -11 **f** -2



- 5.2**
1 b and c **2a** a and c **3** b and c
4a 4 b yes **5a** 4 b yes **6a** 1 b no



- 3a** 5, 7 **b** 9, 19 **c** 31, 50 **d** 4, 15
4a $\frac{2}{3}$ **b** $\frac{3}{5}$ **c** $\frac{7}{8}$ **d** $\frac{17}{20}$

- 5a** three-quarters **b** seven-twelfths
c five-eighths **d** thirteen-fifteenths
6a $\frac{5}{6}$ **b** $\frac{3}{7}$ **c** $\frac{5}{9}$ **d** $\frac{7}{8}$

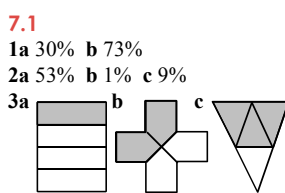
- 6.2**
3a 20 **b** 10 **c** 25 **d** 10

- 4a** $\frac{10}{20}$ **b** $\frac{15}{20}$ **c** $\frac{16}{20}$ **d** $\frac{14}{20}$

- 5a** $\frac{12}{18}$ **b** $\frac{12}{16}$ **c** $\frac{12}{15}$ **d** $\frac{12}{22}$

- 6a** $\frac{1}{2}$ **b** $\frac{1}{3}$ **c** $\frac{5}{6}$ **d** $\frac{2}{3}$

- 7a** $\frac{1}{2}$ **b** $\frac{1}{2}$ **8a** $\frac{1}{4}$ **b** $\frac{3}{4}$



- 4** $\frac{9}{20}$ **5a** 75% **b** $\frac{3}{8}$
6a 4% **b** $\frac{14}{25}$
7a 30% **b** 15

- 8.1**
- | | | | |
|----------|------|-------|--------|
| 1 | tens | units | tenths |
| a | 4 | 2 | .5 |
| b | | 5 | .7 |
| c | 6 | | .2 |
| d | | | .8 |
- 2a** 4 units **b** 4 units **c** 4 tens **d** 4 tenths
3 32.4, 33.4, 34.2
- | | | | | |
|----------|------|-------|--------|------------|
| 4 | tens | units | tenths | hundredths |
| a | 2 | 1 | .6 | 2 |
| b | | 5 | .6 | |
| c | 1 | 4 | .9 | 2 |
| d | 7 | 3 | .7 | |

- 5a** 6 hundredths **b** 6 units **c** 6 tens
d 6 tenths
6 5.04, 5.40, 5.44
7a $\frac{2}{5}$ **b** $\frac{3}{4}$ **c** $\frac{3}{50}$ **d** $\frac{17}{100}$
8ai 1.6 **ii** $1\frac{1}{3}$ **bi** 1.13 **ii** $1\frac{13}{100}$
ci 0.24 **ii** $\frac{6}{25}$

- 9.1**
1a 3.7 **b** 6.3 **c** 107.1
2a 7.26 **b** 40.05 **c** 9.8 **3** 9.81 cm
4a 2.5 **b** 2.3 **c** 2.6 **d** 6.5 **e** 8.89 **f** 8.84
5a 2.51 **b** 1.83 **c** 9.12 **d** 39.41 **e** 6.25
f 69.28
6 325.7 g
7a 0.9 m **b** 6.03 m **c** 0.97 m

- 10.1**
1a 80 **b** 500 **c** 60 **d** 800
2a 1700 **b** 640 **c** 3180 **d** 5000
3a 45 g **b** 13 cm **c** 1 m **d** 1 kg
4a 1200, 1221 **b** 90, 86 **c** 2, 2.36
d 200 (or 270), 271.3
5 only a

- 10.2**
1a 1100, 1098 **b** 500, 569 **c** 8000, 7943
d 3100, 3089 **e** 4000, 4210
f 1000, 1340
2a 8, 8.66 **b** 3, 2.68 **c** 8, 7.58 **d** 3, 2.818
e 17, 17.448 **f** 1, 1.568
3a 15000, 13771 **b** 50000, 49343
c 8000, 8064 **d** 200000, 239445
e 80000, 102418 **f** 280000, 277376
4a 900, 906 **b** 400, 332 **c** 8000, 9213

- 11.1**
1ai 6 **ii** 3 **bi** 9 **ii** 4 **ci** (6, 2) **ii** (1, 9)
2 rectangle, yes, 2
3ai 4 **ii** 2 **b** (5, 6) **c** Q(9, 7) **d** S e (4, 7)

- 11.2**
1ai -3 **ii** 2 **bi** 4 **ii** -4
ci (-5, -2) **ii** (-4, 4) **iii** (3, -3)
iv (4, -1)
2 square
3a 4 cm **b** 4 cm **c** 5.5 cm **d** 3.5 cm
4 (-2, 3)

- 12.1**
2a 3 cm **b** 6 cm
3a 80 mm **b** 400 cm
c 7000 m **d** 100 000 km
4 C **5a** 6000 g **b** 3000 kg **c** 4000 mg
6 10 g

- 12.2**
1a 410 mm **b** 3750 cm **c** 27 mm
d 476 cm
2a 1160 g **b** 220 kg **c** 39750 mg
d 5400 kg
3a 55 mm **b** 500 m **c** 2250 g **d** 1300 kg
e 160 cm **f** 50 mm
4 4500 kg **5** 289 cm

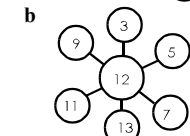
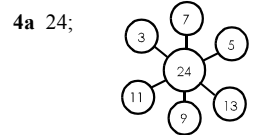
- 13.1**
1a bottom no. = top no. - 4
b bottom no. = top no. - 3
2a length in cm = length in inches × 2.54
b cost of a number of similar CD's = cost of 1 CD × no. of CD's
c perimeter of a square = 4 × length of 1 side
3a cost, in pence, of several 1st class stamps = 28 × cost of 1 1st class stamp
b 336 p
4a cost, in pence, of several 2nd class stamps = 20 × cost of 1 2nd class stamp
b 160 p

- 14.1**
1a 26, 26, same
b 42, 42, equal but not the same as a
c 10, 38, 28 **d** 28, same as c
2a 1×16, 2×8, 4×4
b 1×24, 2×12, 3×8, 4×6
c 1×60, 2×30, 3×20, 4×15, 5×12, 6×10
d 1×36, 2×18, 3×12, 4×9, 6×6
3a 15, 18, 21, 24, 27, 30
b 40, 45, 50, 55, 60 **c** 33, 44, 55, 66
4a 4, 9, 16, 25 **b** 5, 7, 11, 23
c 9, 12, 15, 24
5a 6 **b** 1 **c** 4 **d** 6 **e** 3 **f** 9
 924, 762, 345, 4095;
 their digit sums are divisible by 3.

- 14.2**
1a 4, 11, 18, 25 **b** 5, 11, 17, 23
c 1, 3, 3, 9
2a start with 5, add 9 each time;
 31, 40, 49
b start with 50, take 6 away each time;
 26, 20, 14
c start with 256 and halve each time;
 16, 8, 4
d start with 8000 and halve each time;
 500, 250, 125

3a 21 **b**

6	5	10
11	7	3
4	9	8



- 5b** 7, 10, 13, 16, 19
c e.g. added 3 to 13, then added 3 again

- 15.1**
1a 4 cm² **b** 6 cm² **c** 6 cm² **d** 6 cm²
2a 7 cm² **b** 5 cm² **c** 10 cm²
3a 23 **b** 4 **c** 5.75 cm²

15.2

- 1a 130 mm b 100 mm c 100 mm
d 160 mm e 160 mm f 150 mm
2ai 190 mm ii 8.5 cm^2
bi 160 mm ii 7 cm^2
ci 200 mm ii 9 cm^2

16.1

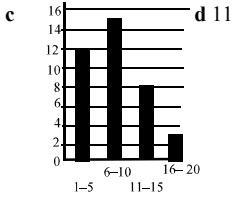
- 1a 6 b 6, 8 c 3 yr
2a 30

no. of goals	0	1	2	3	4	5
Frequency	8	10	6	3	2	1

- c 1 goal
3a 7 b £2.35 c 145.5 g
4a 1 b 56 c 8 d 7

16.2

- 1a 38 b frequencies: 12, 15, 8, 3



- e no - from the list, 5 is the same as 7
f 4 - counting from the list.

17.1

- 1a certain b may happen
c may happen d impossible
2a 4; a red, a black, a blue or brown umbrella
b 5; a brazil, a walnut, a hazel, a cashew or a peanut.
c 6; 2, 3, 5, 7, 11, 13
3a unlikely b certain c impossible
4a 20 b even c even

18.1

- 1ai 2 ii 4 b $2 \text{ cm} \times 2 \text{ cm} \times 3 \text{ cm}$
c e.g. the lengths of all lines are what they are on the real object.
2 11
3ai 10 cm ii 6 cm bi BC ii JI c K, I

18.2

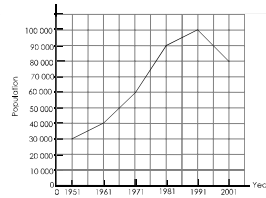
- 1a 30 b 120 c yes, 24 more than needed
2a 30000 cm^3 b 58 litres c 120 litres
4a 0.125 litres b $\frac{1}{8}$ c 8 d 40

19.1

- 1 2 p.m. 2 8°C 3 22°C 4 8 a.m.
5 2 p.m. and 4 p.m.
6 noon and 2 p.m. and 4 p.m. and 6 p.m.
7 no; the temperature is not recorded at that time.
8 yes; the temperature rose from 8°C to 16°C , so it must have gone through 9°C
9 no; the temperature is shown only at individual times so there is no way of knowing what happened in between these times; it could have dropped below 8°C after 8 a.m.

19.2

1, 2



- 3 20000 4 1971-1981; increase
5 1961-1981; increase
6a 1971-1981; largest population increase
b 1991-2001; only population fall

19.3

- 1a €160 b £66 c €1.60 d £0.66 or 66 p
2 €90 3 £22
4a change £85 into euros then multiply by 10
b change €60 into pounds sterling then multiply by 10

20.1

- 1a 5 b 5
ci Tuesday ii Sunday iii Tuesday
d 27th May e 18 f Monday 29th May
2a 5 hours b 9 hours
c $14\frac{1}{6}$ hours or 14 hours 10 min
3a 04.20 b 20.32 c 00.00 d 18.45
4a 8.20 a.m. b 2.45 p.m. c 12.10 a.m.
d 8.12 p.m.
5a 7 hours 15 min b 32 hours 20 min
6 11.50

20.2

- 1 £24 2 £14 3 £40 4 £44 5 £21