Home Learning 11.4 Date Due:.....

1 Rewrite each of the following formulae as indicated.

a $T = 3k$ Make k the subject of the formula.

b $B = k + p$ Make p the subject of the formula.

c $N = 3m + 7p$ Make m the subject of the formula.

2 $T = 5m + 3$

a Find T when $m = 4$.

b Make m the subject of the formula.

c Find m when $T = 43$.

3 $M = 4w - 3k$

a Find M when $w = 7$ and $k = 2$.

b Make w the subject of the formula.

c Find w when $M = 21$ and $k = 5$.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 7.1 Date Due:.....

1 Multiply each of the following numbers by **i** 10 and **ii** 10^2.

a 5.8 **b** 0.95 **c** 86.2

2 Divide each of the following numbers by **i** 0.1 and **ii** 0.01.

a 3.1 **b** 0.68 **c** 302

3 Calculate:

a 5.87×100 **b** $52.9 \div 10$ **c** 98×100 **d** $23.7 \div 1000$.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 7.2 Date Due:.....

1 Round each of the following numbers to **i** one decimal place and **ii** two decimal places.

a 4.678 **b** 19.198 **c** 9.054 **d** 32.891

2 Round the numbers in Question **1** to one significant figure.

3 Estimate the answer to each of the following.

a 9% of £419 **b** 12.2×0.48 **c** $\frac{58.9 \times 33.2}{46.7 - 15.8}$

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Mark: .....

Home Learning 11.3 Date Due:.....

1 Expand and simplify each of the following expressions.

a $3(2x + 4) + 4(x + 1)$ **b** $3(k + 3) + 2(5k + 6)$

c $4(3t + 2) + 3(3t + 5)$ **d** $5(2q + 3) + 4(3q + 1)$

2 Expand and simplify each of the following expressions.

a $4(3x + 6) - 2(3x + 2)$ **b** $6(3k + 5) - 3(2k + 3)$

c $7(2t + 3) - 2(5t + 3)$ **d** $5(3q + 4) - 3(4q + 1)$

3 Expand and simplify each of these.

a $x(3x + 2) + x(5x + 1)$ **b** $p(4p + 2) + p(3p + 5)$

c $k(3k + 4) + k(5k + 2)$ **d** $d(4d + 3) + d(3d + 7)$

.....
.....
.....
.....

Home Learning 7.3 Date Due:.....

Write each of the following fractions as a recurring decimal.

a $\frac{4}{9}$ **b** $\frac{5}{11}$ **c** $\frac{11}{30}$ **d** $\frac{4}{3}$ **e** $\frac{7}{15}$

.....
.....
.....
.....
.....

Mark: .....

Home Learning 7.4 Date Due:.....

1 Without using a calculator, write down the answer to each of these.

a 0.5×0.7 **b** 0.5×0.2 **c** 0.8×0.8 **d** 0.9×0.3

2 Without using a calculator, work out each of these.

a 200×0.06 **b** 0.07×300 **c** 0.4×400 **d** 0.03×700

3 Without using a calculator, work out the answer to each of the following. Use any method you are happy with.

a 63.5×0.4 **b** 1.35×0.7

.....
.....
.....
.....
.....
.....
.....
.....

Mark: .....

Home Learning 7.5 Date Due:.....

1 Without using a calculator, work out each of these.

a 0.6 ÷ 0.3 **b** 0.8 ÷ 0.2 **c** 0.08 ÷ 0.1 **d** 0.8 ÷ 0.04

2 Without using a calculator, work out each of these.

a 600 ÷ 0.6 **b** 800 ÷ 0.2 **c** 80 ÷ 0.08 **d** 600 ÷ 0.02

3 Without using a calculator, work out each of these.

a 4.2 ÷ 20 **b** 2.8 ÷ 40 **c** 16 ÷ 40 **d** 4.5 ÷ 90

4 Without using a calculator, work out each of the following. Use any method you are happy with.

a 10.8 ÷ 1.8 **b** 7.8 ÷ 2.6

Mark: .....

Home Learning 11.2 Date Due:.....

1 Multiply out each of the following brackets.

a $3(m + 4)$ **b** $2(k - 5)$ **c** $4(a + 1)$ **d** $6(2 - p)$

e $3(4x + 5)$ **f** $4(3x + 2)$ **g** $3(5t - 1)$ **h** $7(3m + 5)$

2 Multiply out each of the following.

a $x(t + 3)$ **b** $m(3n + 5)$ **c** $k(2t + 3)$ **d** $n(6p + 1)$

e $t(4 + 3m)$ **f** $g(5 + 3k)$ **g** $h(6 + 4j)$ **h** $k(7 + 3e)$

3 Multiply out each of the following.

a $x(x + 5)$ **b** $m(4m + 1)$ **c** $k(3k + 4)$ **d** $n(5n + 2)$

e $t(5 + t)$ **f** $g(2 + g)$ **g** $h(4 + 7h)$ **h** $d(1 + 4d)$

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 7.6 Date Due:.....

1 Use the fraction key on your calculator to work out each of these. Give your answer as a mixed number or a fraction in its simplest form.

a $\frac{1}{4} + \frac{2}{3} + \frac{5}{6}$ **b** $1\frac{2}{3} + 1\frac{1}{8} - \frac{5}{12}$ **c** $\frac{3}{5} \times \frac{5}{9} \div 1\frac{1}{3}$

d $(1\frac{3}{5} + 1\frac{1}{3}) \div \frac{11}{15}$ **e** $\dfrac{2\frac{2}{3} - 1\frac{1}{4}}{1\frac{1}{2} + 1\frac{5}{6}}$

2 Use the power key and/or the cube/cube-root key on your calculator to work out each of these.

a 2^7 **b** 3.2^3 **c** $\sqrt[3]{2197}$ **d** $\sqrt{3^2 + 2^3}$

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 7.7 Date Due:.....

Do not use a calculator for Question 2.

1 If you have already started the extension activity, complete the poster for homework, otherwise do the next two problems.

2
- Choose a two-digit number such as 18. Multiply the units digit by 3 and add the tens digit. That is, $3 \times 8 + 1 = 25$.
- Repeat with the new number. That is, $3 \times 5 + 2 = 17$.
- Keep repeating the procedure until the numbers start repeating, namely:

  $17 \longrightarrow 22 \longrightarrow 8 \longrightarrow 24 \longrightarrow \ldots$
- Show the chains on a poster. For example:

Mark: .....

Home Learning 11.1 Date Due:.....

1 Simplify each of the following expressions.

a $3b + 4 + b$	**b** $4x + 5 + 2x$	**c** $q + 2 + 4q$	**d** $4k + k + 6$
e $3x + 4 - x$	**f** $6k + 2 - 2k$	**g** $4p + 2 - 2p$	**h** $7d + 1 - 4d$
i $5m - 1 - 3m$	**j** $4t - 2 - t$	**k** $4w - 6 - 2w$	**l** $5g - 4 - 2g$
m $3t + k + 4t$	**n** $3x + 2y + 4x$	**p** $2k + g + 3k$	**q** $4h + w + 2w$

2 Simplify each of the following expressions.

a $2t + 3g + 5t + 2g$	**b** $6x + 2y + 2x + 5y$	**c** $2m + 2k + 3m + 2k$
d $7x + 5y - 2x + 3y$	**e** $8m + 2p - 4m + 3p$	**f** $5n + 2t - n + 3t$
g $8k + 5g - 2k - 2g$	**h** $5d + 4b - 2d - b$	**i** $4q + 3p - 2q - p$
j $6g - 2k + 4g + 3k$	**k** $7x - 3y + x + 5y$	**l** $6d - 3e - 3d + 6e$

Home Learning 8.1 Date Due:.....

1 Write down the first ten multiples of each of these.

a 2 **b** 4 **c** 6 **d** 8 **e** 11

2 Use your answers to Question **1** to help to find the LCM of each pair of numbers.

a 4 and 6 **b** 4 and 11 **c** 6 and 8 **d** 8 and 11

3 Write down all the factors of each of the following.

a 9 **b** 24 **c** 32 **d** 45 **e** 56

4 Use your answers to Question **3** to help find the HCF of each pair of numbers.

a 9 and 24 **b** 24 and 32 **c** 45 and 30 **d** 48 and 56

5 Find the LCM of each pair of numbers.

a 2 and 9 **b** 5 and 7 **c** 3 and 8 **d** 6 and 10

e 9 and 12 **f** 12 and 20 **g** 8 and 30 **h** 20 and 25

6 Find the HCF of each pair of numbers.

a 18 and 12 **b** 16 and 20 **c** 15 and 35 **d** 24 and 42

e 6 and 12 **f** 8 and 20 **g** 36 and 45 **h** 30 and 75

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 8.2 Date Due:.....

1 Write down the value of each of these.

a $\sqrt{16}$ **b** $\sqrt{49}$ **c** $\sqrt{81}$ **d** $\sqrt{100}$ **e** $\sqrt{144}$

f $\sqrt[3]{1}$ **g** $\sqrt[3]{125}$ **h** $\sqrt[3]{343}$ **i** $\sqrt[3]{1000}$ **j** $\sqrt[3]{512}$

2 Find the value of x that makes each of the following equations true.

a $x^2 = 36$ **b** $x^2 = 1$ **c** $x^2 = 64$ **d** $x^2 = 9$

e $x^2 = 4$ **f** $x^2 = 25$ **g** $x^2 = 169$ **h** $x^2 = 900$

3 Find the value of each of these.

a $7^2 + 7^3$ **b** $8^2 + 8^3$ **c** $9^2 + 9^3$

4 **a** Explain how you can tell that $\sqrt{56}$ is between 7 and 8.

b Explain how you can tell that $\sqrt{90}$ is between 9 and 10.

c Which two consecutive whole numbers is $\sqrt{21}$ between?

d Which two consecutive whole numbers is $\sqrt{75}$ between?

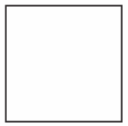
Home Learning 10.4 Date Due:.....

1 The following shapes are drawn to scale. Measure each of them, and then draw each shape to its full size.

a

Scale: 1 cm to 2 cm

b

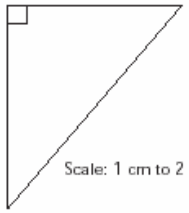


Scale: 1 cm to 3 cm

c

Scale: 1 cm to 4 cm

d

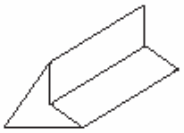


Scale: 1 cm to 2 cm

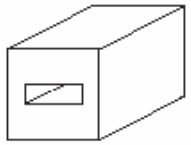
Home Learning 10.3 Date Due:.....

1 Write down the number of planes of symmetry for each of the following 3-D shapes.

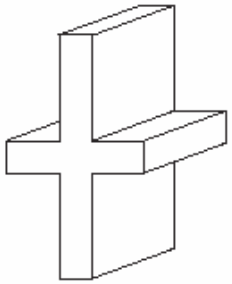
a



b



c



2 How many planes of symmetry does a cylinder have?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 8.3 Date Due:.....

1 These are the prime factors of eight different numbers. What are the numbers?

a $2 \times 2 \times 3$ **b** $2 \times 3 \times 5$ **c** $3 \times 3 \times 7$ **d** $2 \times 5 \times 5$

e $2 \times 2 \times 3 \times 5$ **f** $2 \times 3 \times 5 \times 5$ **g** $2 \times 3 \times 5 \times 7$ **h** $2 \times 2 \times 5 \times 7$

2 What numbers are represented by each of the following prime factors?

a $2^2 \times 5$ **b** 2×3^2 **c** $3^2 \times 7$ **d** 2×5^2

3 Use a prime factor tree to find the prime factors of each of the following numbers.

a 21 **b** 28 **c** 30 **d** 40 **e** 50

f 16 **g** 22 **h** 32 **i** 44 **j** 56

4 Use the division method to find the prime factors of each of the following numbers.

a 150 **b** 120 **c** 96 **d** 180 **e** 200

f 640 **g** 280 **h** 112 **i** 225 **j** 540

5 Use prime factors to work out the HCF and LCM of each pair of numbers.

a 120 and 80 **b** 280 and 350 **c** 60 and 140

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 10.1/2 Date Due:.....

1 Draw copies of the shapes shown and enlarge each one by the given scale factor about the centre of enlargement, O.

a Scale factor 2

b Scale factor 3

c Scale factor 2

Mark: .....

Home Learning 9.3 Date Due:.....

A spinner has different coloured sections. It is spun 100 times and the number of times it lands on blue is recorded at regular intervals. The results are shown in the table.

Number of spins	20	40	60	80	100
Number of times lands on blue	6	10	15	22	26
Relative frequency	0.3				

a Copy and complete the table.

b What is the best estimate of the probability of landing on blue?

c How many times would you expect the spinner to land on blue in 2000 spins?

d If there are two sections of the spinner coloured blue, how many sections do you think there are altogether? Explain your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 8.4 Date Due:.....

Draw sketch graphs to illustrate each of the following.

1 A train accelerating away from a railway station.

2 A parachutist jumping from an aircraft and then pulling her ripcord to slow the descent.

3 The temperature inside a freezer when its door has been left wide open.

4 The number of people left in Old Trafford after the final minute of an exciting test match, when all the gates are open.

5 The population of the world since the year 2000 BC.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 9.1 Date Due:.....

1 David and Dawn visit a pet shop. They each choose one pet, which is either a dog or a cat.

a Make a list of all the possible outcomes.

b Make a table of all the possible outcomes.

2 Mark, Bev, Daniel and Richard go to a concert. Richard wants to sit with Bev but not with Daniel. Make a list of the possible seating arrangements.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....

Home Learning 9.2 Date Due:.....

1 A coin is thrown and a dice is rolled. If the coin lands on heads the number on the dice is doubled to obtain the score. If the coin lands on tails 1 is subtracted from the number on the dice to obtain the score. Copy and complete the table of score.

	1	2	3	4	5	6
Head	2	4				
Tail	0	1				

Write down the probability of a score of:

a 3 **b** 4 **c** Less than 5 **d** Greater than 6

e Odd number **f** Square number **g** Multiple of 4

2 A shop sells shirts which are plain, striped, patterned or checked. A boy picks two different shirts at random. Make a list of the six different combinations which could be chosen. Write down the probability of choosing each of the following combinations.

a Plain and striped **b** Checked with any other type **c** No patterned shirt

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mark: .....