3 Fatima makes a sequence of five numbers.
The first number is 2.
The last number is 14.
Her rule is, add the same number each time.
What are the missing numbers?

2	?	?	?	14

4 Copy and complete these sequences. (The step size is constant in each sequence.)

(a) 0.6 0.9 ? ? ?

(b) ? $\frac{5}{8}$ $\frac{7}{8}$ $1\frac{1}{8}$?

(c) −7 −5 ? ? ?

(d) ? $1\frac{1}{3}$ $2\frac{2}{3}$ 4 ?

(e) 0.61 0.72 ? ? ?

5 Copy the table and write down the next five terms in these sequences.

	Rule	First term	Next five terms
a	add 4	3	
b	subtract 9	60	
c	multiply by 2	2	
d	divide by 2	128	

6 Copy these sequences and write down the next five terms.
(a) −1 −3 −5 −7 ... (b) 5 0 −5 −10 ... (c) 11 5 −1 −7 ...

7 The first term and the rule of the sequence are given.
Write down the next four terms in the sequence:
(a) first term 8 rule: multiply by 2 and add 1
(b) first term 4 rule: subtract 1, then multiply by 2
(c) first term 400 rule: halve the term.

Number sequences

Let's investigate

Choose different starting numbers to make sequences that have a rule 'add 5'.

Is it possible to make a sequence where the rule is 'add 5' and the terms are:

- multiples of 5?
- multiples of 10?
- all odd?
- include 24 and 39?
- are not whole numbers?

You will need to try different starting numbers.

1 Here is the beginning of a sequence of numbers:

8, 16, 24, 32, 40 ...

The sequence continues in the same way.

Will 88 be in the sequence? Explain how you know.

2 A sequence starts at 200 and 30 is subtracted each time.

200, 170, 140 ...

What are the first two numbers in the sequence that are less than zero?

Vocabulary

sequence: an ordered set of numbers, shapes or other mathematical objects arranged according to a rule. For example,
3, 6, 9, 12, 15 ...
1, 4, 9, 16, 25 ...
□ ○ △ □ ○ △ □

step: the 'jump size'. For example, in the sequence
60 $\underset{+50}{\smile}$ 110 $\underset{+50}{\smile}$ 160 $\underset{+50}{\smile}$ 210
the step is '+50'.

term: one of the numbers in a sequence.

rule: a rule tells you how things or numbers are connected. For example, the numbers 3, 7, 11, 15, 19 ... are connected by the rule 'add 4 to the previous number'.

4 A shop has these items for sale.

Coffee maker	$129.95
Toaster	$30.75
Can opener	$14.25
Ice cream maker	$26.80



Darius buys an ice cream maker and a coffee maker. How much does he spend altogether?

5 Use the digits 3, 5 and 6 only to complete these calculations.
You can use each digit more than once.

? ? · ? + ? ? · ? = 100

6 Here are six number cards:

Use each card once to complete these two calculations:

? + ? = ?
? + ? = ?

7 Choose one number from each box to make a total of 10. Write down the number sentence.

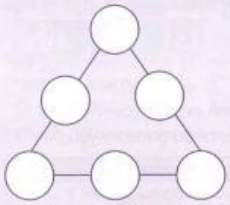
1.5 2.5 3.5 4.5	+	2 4	+	1.5 2.5 3.5 4.5

= 10

Addition of decimals

Let's investigate

Arrange the numbers 0.1, 0.2, 0.3, 0.4, 0.5 and 0.6 in the circles so the sum along each side of the triangle is 1.2.



Try using numbers on cards or small pieces of paper, that you can move around.

1 The answers to the following questions are in the grid. Find which answer goes with which question. Which number is not one of the answers?

8.28	4.3	2.05
7.8	5.41	12.18
13.95	4.98	12.21

(a) 4.61 + 0.8 (b) 0.45 + 1.6 (c) 3.7 + 4.58 (d) 6.1 + 7.85
(e) 4.3 + 0.68 (f) 7.5 + 4.68 (g) 4.25 + 7.96 (h) 3.45 + 0.85

2 Kiki has two pieces of rope. One piece is 93.7 metres long and the other piece is 125.9 metres long. What is the total length of her rope?

3 Find the sum of all the numbers less than 5.5 in this list.
5.05 5.55 5.15 5.5

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Division (1)

Let's investigate

Abdul was asked how old he was.

If my age is divided by 2 or 3 or 4 there is 1 left over. If my age is divided by 7 there is no remainder.

How old is Abdul?

List the multiples of 7.

1 Vincent wants to put 75 photographs in an album. A full page holds 6 photographs. What is the smallest number of pages Vincent uses?

2 Which number on the grid can be divided by 8 with a remainder of 1?

67	72	51
42	73	64
60	20	69

3 Complete these calculations:

(a) 78 ÷ 4 (b) 68 ÷ 7 (c) 98 ÷ 6

4 Copy the grid. Shade the squares that have a remainder in the answer.

What letter have you made?

41 ÷ 4	47 ÷ 9	48 ÷ 5
14 ÷ 4	25 ÷ 5	31 ÷ 3
55 ÷ 6	27 ÷ 6	50 ÷ 7
34 ÷ 7	48 ÷ 6	54 ÷ 9
60 ÷ 8	54 ÷ 6	49 ÷ 7

5 Complete these calculations:

(a) 132 ÷ 6 (b) 146 ÷ 9

(c) 147 ÷ 2 (d) 107 ÷ 4

(e) 156 ÷ 8 (f) 148 ÷ 9