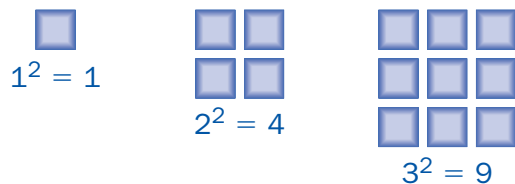


N5a Squares and cubes

Here are patterns for the first three square numbers.



1 a Draw the next two square number patterns into the space above.

b This is a sequence of the first 5 square numbers.
Write down the next four numbers in the sequence.

1, 4, 9, 16, 25, _____, _____, _____, _____

2 Use a calculator to evaluate these numbers.

a $13^2 =$ _____ **b** $20^2 =$ _____ **c** $15^2 =$ _____ **d** $25^2 =$ _____

On your calculator you can work out cube numbers like this:

$6^3 \rightarrow$

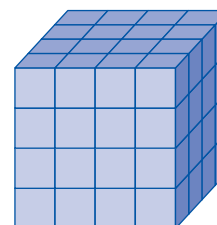
e $3^3 =$ _____ **f** $10^3 =$ _____ **g** $8^3 =$ _____ **h** $7^3 =$ _____

i $3 \cdot 2^2 =$ _____ **j** $5 \cdot 6^2 =$ _____ **k** $3 \cdot 2^3 =$ _____ **l** $1 \cdot 6^3 =$ _____

3 Use a calculator or do these on paper to find the value of these expressions.

a $5^2 - 3^2 =$ _____ **b** $10^3 + 13^2 =$ _____ **c** $7^3 - 9^2 =$ _____

4 The large cube is made from smaller centimetre cubes.
Each layer has 4 small cubes across and 4 cubes deep.
There are 4 layers.



a How many small cubes do you need to make a big cube?

.....

b Your answer can be written as $4 \square$. What number goes into the box?

.....

N5b Factors and multiples

1 Complete these factor diagrams.

a 16

1

2

4

b 24

1

2

3

4

Find all the factor pairs for these numbers and complete the factor diagrams.

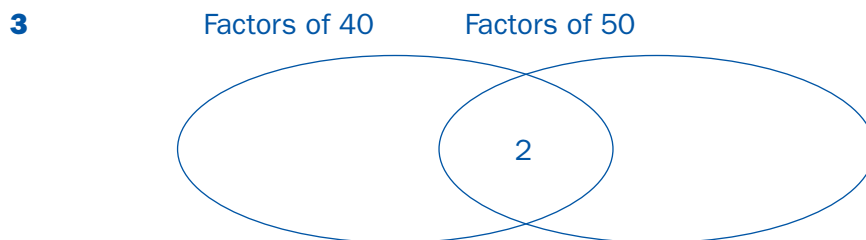
c 18

d 40

2 **a** Find as many factors as you can for these numbers.

- i** 15:
- ii** 36:
- iii** 60:

b Circle the factors which are common to 36 and 60.



- a i** List the factors of 40 in this ring. **ii** List the factors of 50 in this ring.
- b** List the common factors in the cross-over of both rings. For example, 2.

4 **a** List the first ten multiples of 4.

4: 4, _____, _____, _____, _____, _____, _____, _____, _____, _____,

b List the first ten multiples of 6.

6: 6, _____, _____, _____, _____, _____, _____, _____, _____, _____,

Circle the common multiples in each list.






D3a Pictograms

- 1** A survey is carried out in a village. The question is:
‘How many cars are there at your household?’
Here is a pictogram of the results.

Key:

 = 10 houses

 = 5 houses

Cars per house	Number of households
No car	
1 car	
2 cars	
3 cars	
more than 3 cars	

- a** How many houses have no car?
- b** How many houses have more than 3 cars?
- c** There is a group of 55 houses.
How many cars do each of these household have?
- d** How many households were surveyed in total?
- 2** A survey is carried out to discover how students travel to college.

Here are the results:

- 30 **walk** to college
- 25 travel by **car**
- 65 travel by **bus**
- 40 **cycle** to college
- 35 travel by **train**

Display this data on the pictogram, using the key.

Key:

 = 10 students

 = 5 students

Type of travel	Number of students
Walk	
Car	
Bus	
Cycle	
Train	

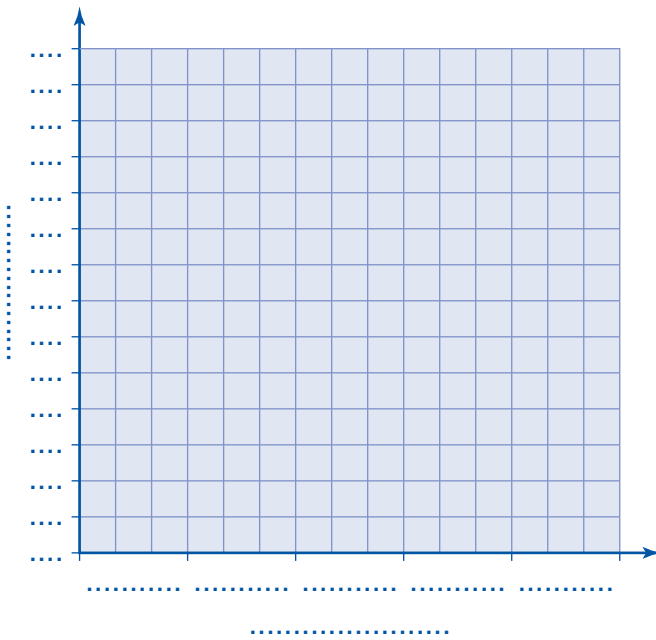
- a** How many students were surveyed in total?
- b** How many students use public transport?
- (public transport = buses and trains)

D3b Bar charts

1 The frequency table shows the results of a survey about hair colour. Transfer this data onto the bar chart.

- a Label the columns (the bars)
- b Put number on the y axis
- c Label the x axis, 'Colour of hair'
- d Label the y axis, 'Number of people'

Hair colour	Tally	Frequency
Black	II	7
Blonde		4
Brown	II	12
Red		3
White	I	6



2 This is the number of portions of fish sold at Bert's Fish Bar, during one evening.

9 haddock - 4 huss - 13 cod - 2 skate - 5 plaice

On the grid below, draw a bar chart to show this data.

