

## Addition / Subtraction

### Sum

This is the total of adding two or more numbers

e.g The sum of 8 and 3 is 11 (8+3)

### Difference

This is how apart two numbers are

e.g The difference in 8 and 3 is 5 (8-3)

### Commutative

Adding is commutative because

$2 + 7 = 9$  and  $7 + 2 = 9$

It doesn't matter which way round you add

Subtracting is not commutative because

$5 - 2 = 3$  but  $2 - 5 = -3$

Changing the order of subtraction changes the answer

### Associative

It doesn't matter where you put the brackets the answer will be the same

$$(4 + 7) + 1 = 4 + (7 + 1)$$

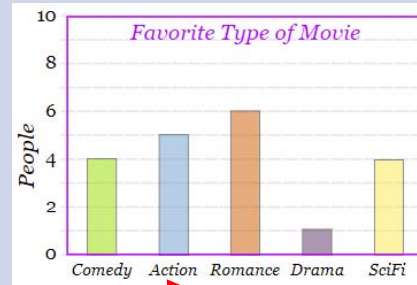
$$11 + 1 = 4 + 8$$

$$12 = 12$$

## Bar Chart

The height of the bar chart tells you the frequency. Bars must be of equal widths and have equal gaps between them

Frequency on the vertical axis



Data categories on the horizontal axis

## Finance

### Credit

Money going into a bank account

### Debit

Money going out of a bank account

### Balance

How much is in the bank account

Date	Description	Credit £	Debit £	Balance £
2 <sup>nd</sup> May	Opening balance			104.50
5 <sup>th</sup> May	Gift	20		124.50
6 <sup>th</sup> May	Phone Bill		38.50	86

### Profit

Sam bought a car for £3000 and sold it for £4000. He made a £1000 profit ( $4000 - 3000 = 1000$ )

### Loss

Sam bought a car for £3000 and sold it for £2000. He made a £1000 loss ( $2000 - 3000 = -1000$ )

## Multiplying / Dividing

### Product

When you multiply two or more numbers the answer is the product

e.g  $5 \times 7 = 35$  35 is the product

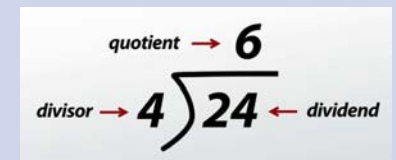
Multiplying is **commutative** and **associative**

$6 \times 4 = 24$   $4 \times 6 = 24$ ,  $(7 \times 2) \times 3 = 7 \times (2 \times 3)$

### Quotient

When you divide a number, the answer is the quotient

$24 \div 4 = 6$



Dividing is not commutative

$10 \div 2 = 5$  but  $2 \div 10 = 0.2$

### Array

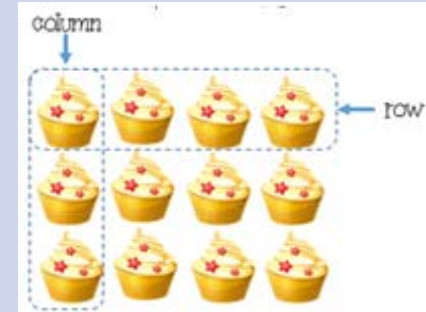
Items or numbers placed in rows and columns are called an array

$$3 \times 4 = 12$$

$$4 \times 3 = 12$$

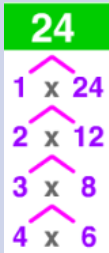
$$3 + 3 + 3 + 3 = 12$$

$$4 + 4 + 4 = 12$$



## Factors and multiples

**Factors** are whole numbers that divide exactly into another number. When you are looking for factors you can identify them in pairs.



### Highest Common Factor HCF

Factors of 12: 1, 2, 3, 4, 6, 12

Factors of 16: 1, 2, 4, 8, 16

Common Factors

HCF is the largest number that divides into two or more numbers. 4 is the HCF of 12 and 16 as it is the largest number that goes into both 12 and 16

**Multiples** of a number are found by multiplying that number by an integer

### Lowest Common Multiple LCM

**LCM** is the smallest number that appears in the timetables of two or more numbers

Multiples of 3:

0, 3, 6, 9, 12, 15, 18, 21, 24...

Multiples of 4:

0, 4, 8, 12, 16, 20, 24, 28...

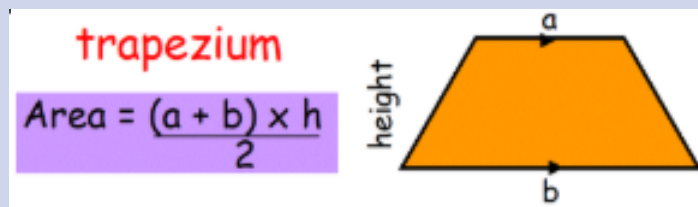
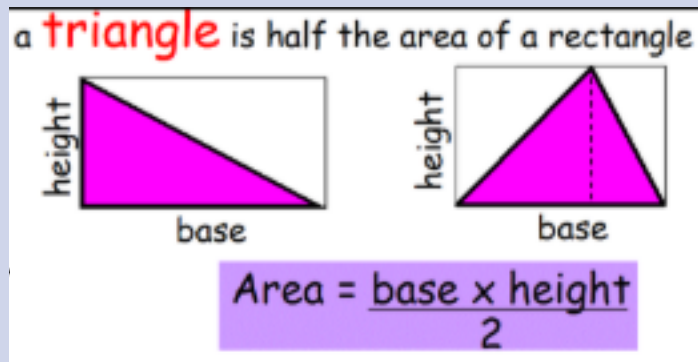
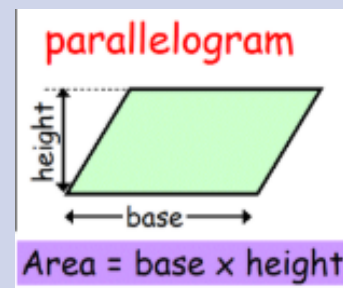
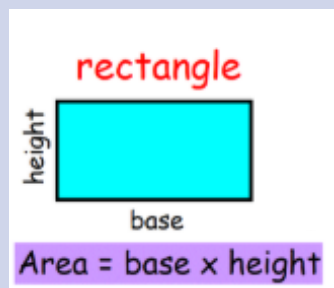
The LCM of 3 and 4 is 12.

## Area

### Perpendicular

Two lines which are  $90^\circ$  to each other are perpendicular

### Area formulas



## Metric units

**Metric** units are units that use powers of ten

**Prefix** is a word at the front of another word that changes its meaning

Prefix	Meaning
Milli	$1/1000$
Centi	$1/100$
Deci	$1/10$
Deca	10
Hecto	100
Kilo	1000

### Units of Length

Millimetre (mm) - thickness of a credit card  
 Centimetre (cm) - width of a paper clip  
 Metre (m) - width of a school desk  
 Kilometre (km) - around the length of ten football pitches

### Units of weight

Gram (g) - about the weight of one paper clip  
 Kilogram (kg) - weight of a bag of sugar

### Units of capacity

Millilitre (ml) - tip of a teaspoon  
 Litre (l) - two pint bottles of milk