Number and Place Value

M	HTh	TTh	Th	H	T	O	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundred	Tens	Ones	Tenths	Hundredths	Thousandths
4	7	1	2	6	4	9	3	5	8

Four million, seven hundred and twelve thousand, six hundred and forty-nine point three, five, eight.

1	I	6	VI	10	X
2	II	7	VII	50	L
3	III	8	VIII	100	C
4	IV	9	IX	500	D
5	V	10	X	1000	M

Factor – A number which will divide exactly into another number.
Factor of 12 are: 1 2 3 4 6 12

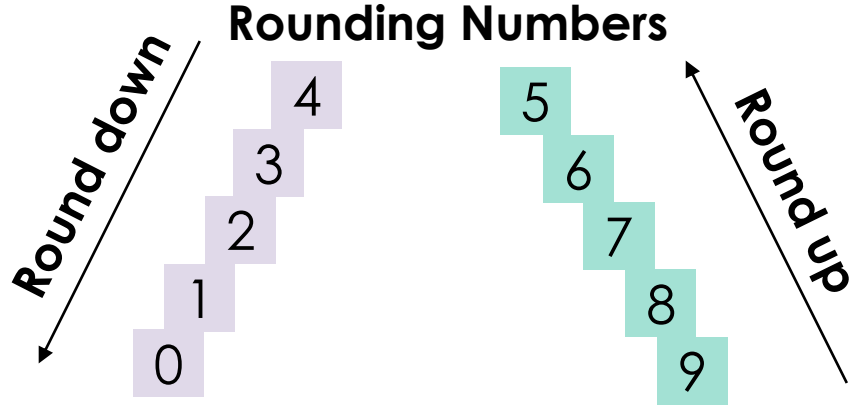
Prime number – A number with only two factors, 1 and itself.
2 3 5 7 11 13 17 19 23

Multiple – The product of a given number with another factor
Multiples of 3: 3 6 9 12 … 36 …. 300

Square number – A number squared is a number multiplied by itself.
$4^2 = 4 \times 4 = 16$

Cube number – A number cubed is a number multiplied by itself twice.
$5^3 = 5 \times 5 \times 5 = 125$

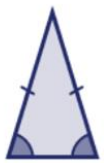
Rounding Numbers

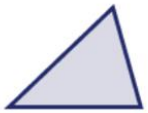


Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others

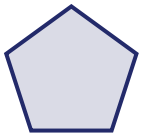
Geometry - Shape

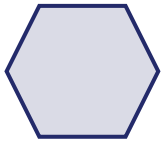

Equilateral Triangle

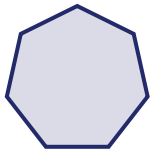

Isosceles Triangle

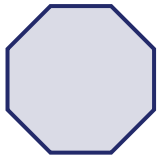

Scalene Triangle

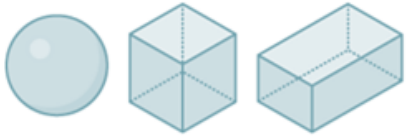

Right Angle Triangle


Pentagon

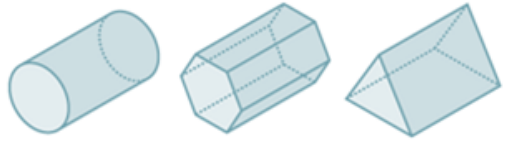

Hexagon


Heptagon


Octagon


Sphere Cube Cuboid


Cone Square-based pyramid Tetrahedron


Cylinder Hexagonal prism Triangular prism

Quadrilateral	Image	Sides	Angles	Symmetry
Square		Four equal sides 2 pairs of parallel lines	All angles are 90°	Four lines of symmetry Order of rotation 4
Rectangle		Two pairs of equal sides 2 pairs of parallel lines	All angles are 90°	Four lines of symmetry Order of rotation 2
Parallelogram		Two pairs of equal sides 2 pairs of parallel lines	Opposite angles are equal	No lines of symmetry Order of rotation 2
Rhombus		Four equal sides 2 pairs of parallel lines	Opposite angles are equal	Two lines of symmetry Order of rotation 2
Kite		Two pairs of equal sides	Opposite angles are equal	One line of symmetry Order of rotation 0
Trapezium		One pair of parallel sides	No equal sides	No lines of symmetry Order of rotation 0


Acute angle
Less than 90°


Right angle
Exactly 90°

Vertex – A point at which two or more line segments or edges meet

Edges – The intersection of two faces of a three-dimensional object

Faces – A plane surface of a three-dimensional object

Polygon – A two-dimensional shape with three or more straight sides


Obtuse angle
Greater than 90°
Less than 180°

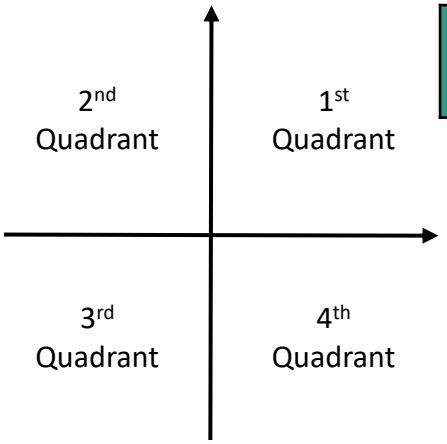
Straight line
Exactly 180°

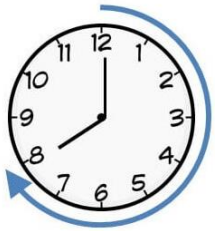

Reflex angle
Greater than 180°
Less than 360°

About a point
Exactly 360°

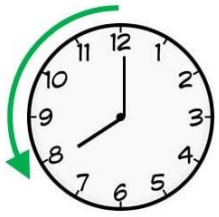
Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others

Geometry – Position and direction

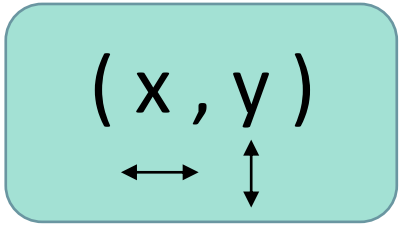


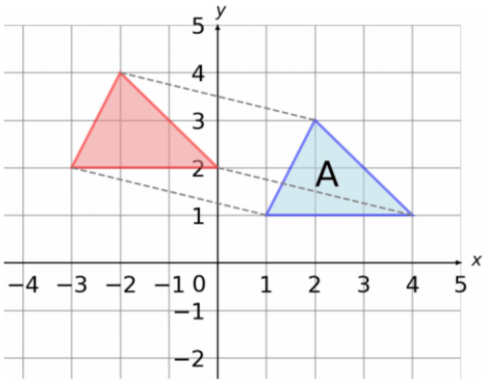


Clockwise

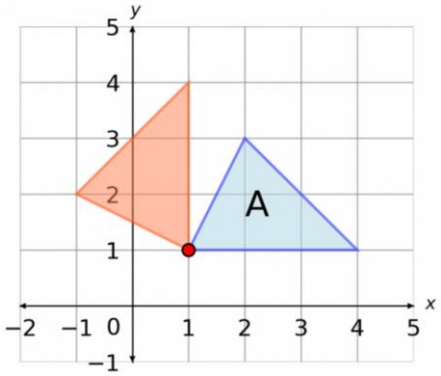


Anti-clockwise

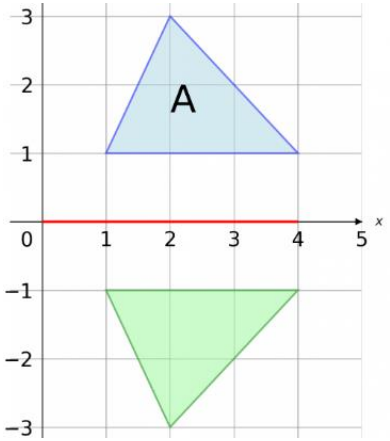




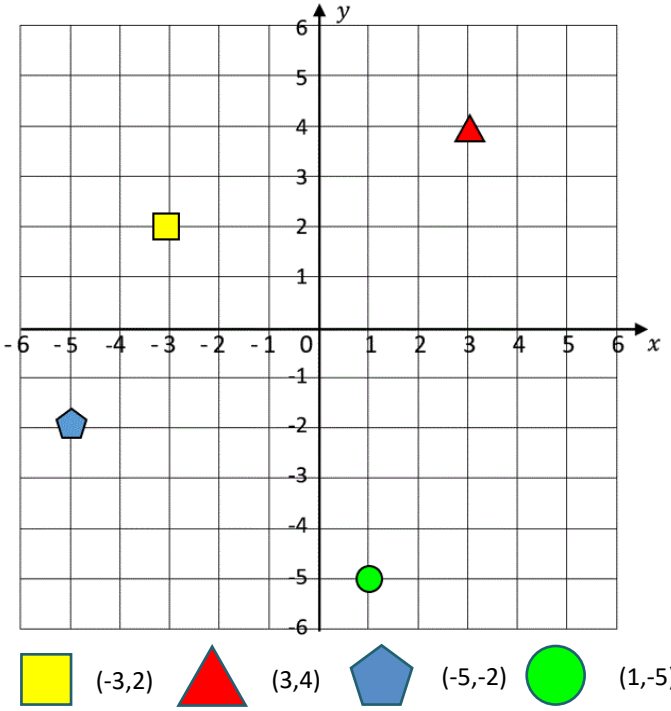
Translation - Move



Rotation - Turn



Reflection - Flip



Axis – Axes are The horizontal number line (x-axis) and the vertical number line (y-axis) on the coordinate plane.

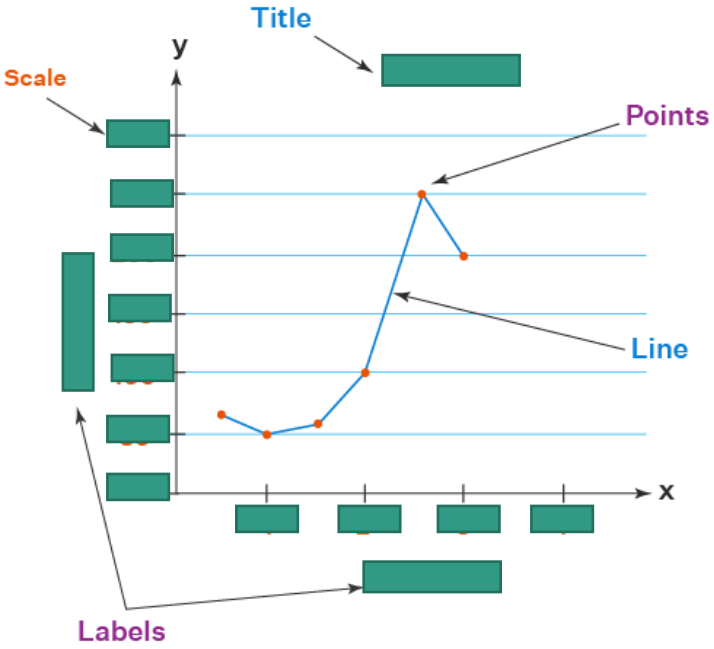
Coordinates – Numbers used to locate a point on a grid.

Parallel lines – Lines with no common points and always the same distance apart.

Perpendicular lines – A line at right angles to another line or plane.

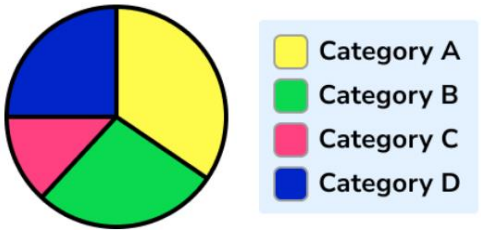
Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others

Statistics



How to draw a line graph

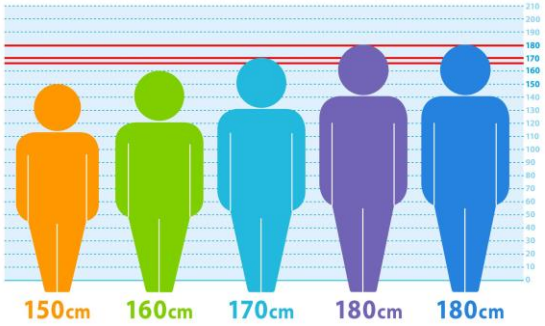
1. Label the axes and add an axis title
2. Plot each data point accurately
3. Connect the points with a straight line



How to draw a pie chart

1. Calculate the size of each angle
2. Measure and draw the angle for the first category.
3. Measure and draw the and angles for each other category
4. Add date labels/ complete a key

Averages



Mode: Which appears most frequently.

180cm

Median: What is the middle of the data?

170cm

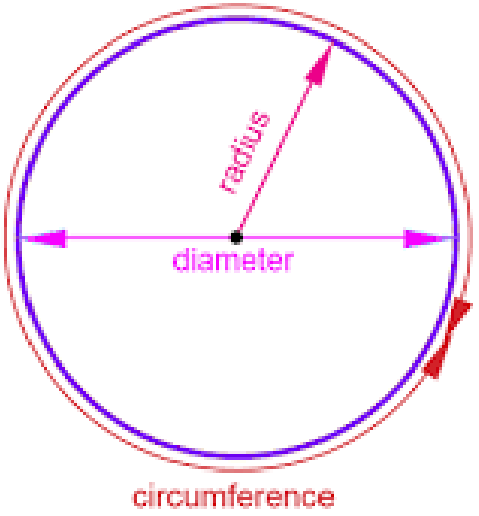
Mean: What is the average of the set?

150 + 160 + 170 + 180 + 180 = 840
840 ÷ 5 = 168cm

Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others

Measurement

Months	Days
January	31
February	28 (29 leap year)
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
November	30
December	31



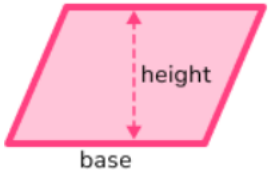
1 cm	100 mm
1 m	100 cm
1 km	1000 m
1 kg	1000 g
1 l	1000 ml

Area – The amount of space within a perimeter (expressed in square units).

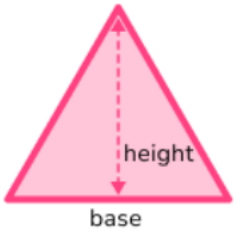
Perimeter – The length of the distance around the boundary of a shape.

Volume – The amount of space a 3D shape takes up.

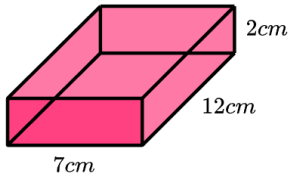
Area = base x height



Area = base x height



Area = ½ x base x height



Volume = length x width x depth

Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others

Fractions. Decimals. Percentages

The numerator tells you how many parts are in our fraction.

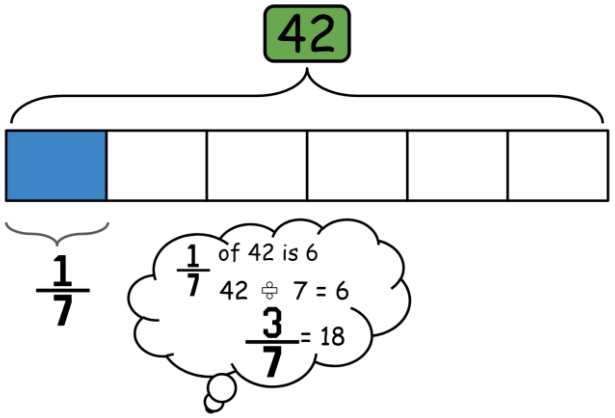
Numerator

Denominator

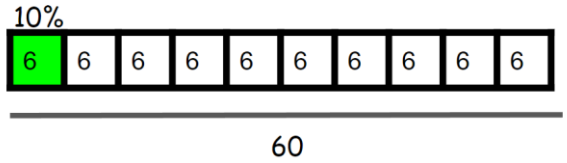
The denominator tells us how many equal parts the whole has been divided into.

$$\frac{2}{3} \overset{\times 2}{=} \frac{4}{6} \overset{\times 2}{=} \frac{8}{12}$$

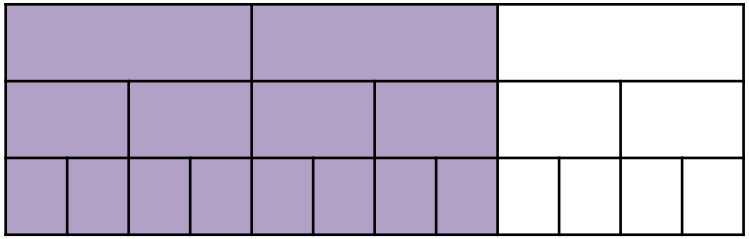
Improper fraction $\frac{3}{2} = 1\frac{1}{2}$ Mixed Number



23% of 60 = 13.8



20% = 12
1% = 0.6



Fractions	Decimals	Percentages
$\frac{1}{100}$	0.01	1%
$\frac{1}{10}$	0.1	10%
$\frac{1}{5}$	0.2	20%
$\frac{1}{4}$	0.25	25%
$\frac{1}{2}$	0.5	50%
$\frac{3}{4}$	0.75	75%
$\frac{1}{1}$	1	100%

$$\frac{2}{3} + \frac{1}{9} = \frac{6}{9} + \frac{1}{9} = \frac{7}{9}$$

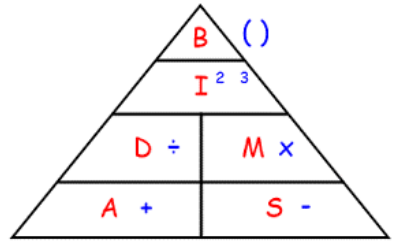
$$2 - \frac{1}{5} = \frac{10}{5} - \frac{1}{5} = \frac{9}{5} = 1\frac{4}{5}$$

$$\frac{2}{3} \times \frac{1}{9} = \frac{2}{27}$$

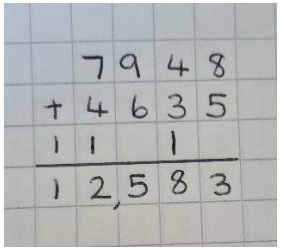
$$\frac{4}{5} \div \frac{2}{3} = \frac{4}{5} \times \frac{3}{2} = \frac{12}{10} = \frac{6}{5} = 1\frac{1}{5}$$

Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others

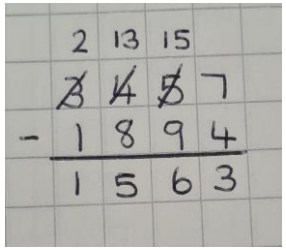
Calculation



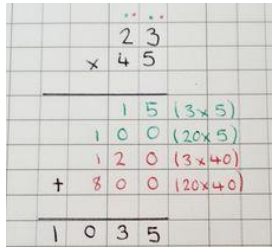
Formal Written Method for addition



Formal Written Method for subtraction



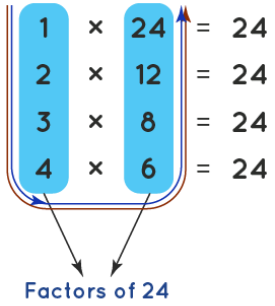
Formal Written Method for multiplication (expanded)



Multiplies

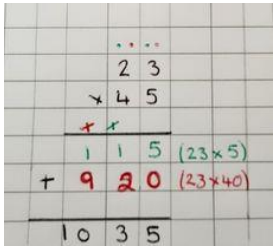
6	×	0	=	0
6	×	1	=	6
6	×	2	=	12
6	×	3	=	18
6	×	4	=	24
6	×	5	=	30
6	×	6	=	36
6	×	7	=	42
6	×	8	=	48
6	×	9	=	54
6	×	10	=	60

Factors

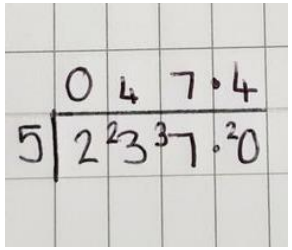


Factors of 24 = 1, 2, 3, 4, 6, 8, 12, 24

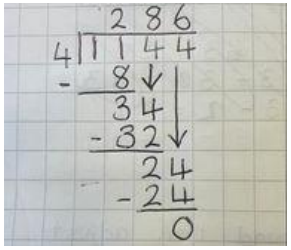
Formal Written Method for multiplication



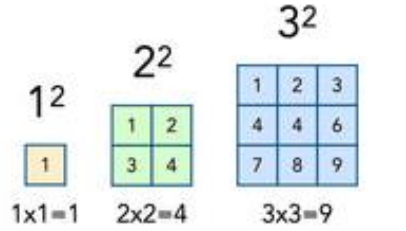
Formal Written Method for short division



Formal Written Method for long division



Squares & Cubes



1 × 1 × 1 = 1

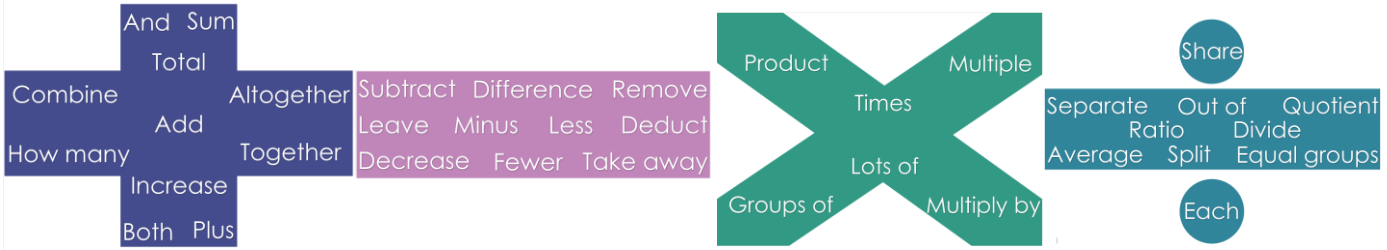
$1^3 = 1$

2 × 2 × 2 = 8

$2^3 = 8$

3 × 3 × 3 = 27

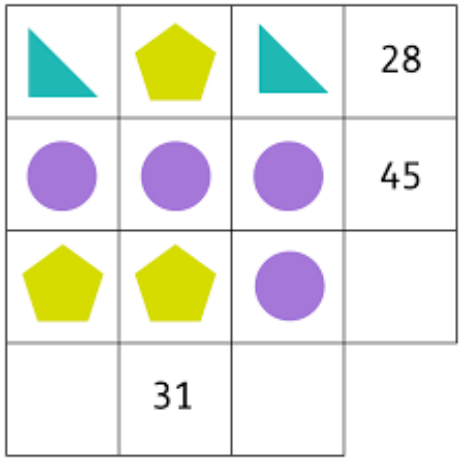
$3^3 = 27$



Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others

Algebra

Algebra is a part of maths that uses letters and symbols in the place of numbers. Each letter or symbol is a variable and can represent a range of values.
An algebraic statement may be an expression, an equation, a formula or an identity.



$a + a + a = 3a$

$y \times y \times y \times y \times y = y^4$

$7w = 7 \times w$

$\frac{10}{t} = 10 \div t$

Equation – A statement of equality between two expressions.

2x + 5 = 7

Expression – An expression in math is a statement having minimum of two numbers, or variables, or both and an operator connecting them.

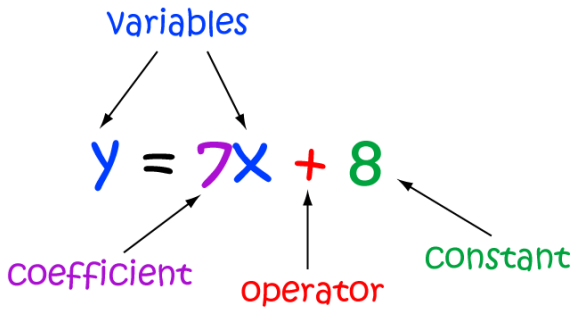
3x + 4

Formula – A formula is a mathematical rule or relationship that uses letters to represent amounts which can be changed – these are called variables.

Area = b x h

Identity - An equation that is true no matter what values are chosen

m + m + m ≡ 3m



Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others

Ratio and Proportion

6 : 4
3 : 2

For every 2 eggs, Tom uses 150g of flour.
If Tom uses 8 eggs. How much flour does he need?

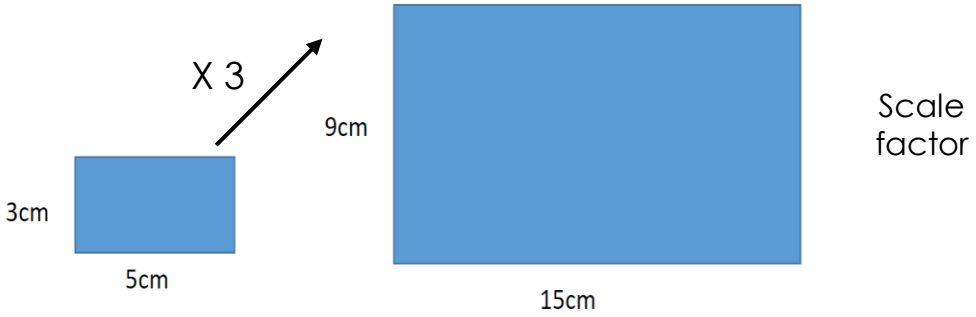
X 4 ↓ 2 : 150 ↓ X 4

8 : 600

In a bag of sweets, there are 3 red sweets for every 2 blue sweets.
If there are 40 sweets in the bag how many red sweets are there?

3 : 2

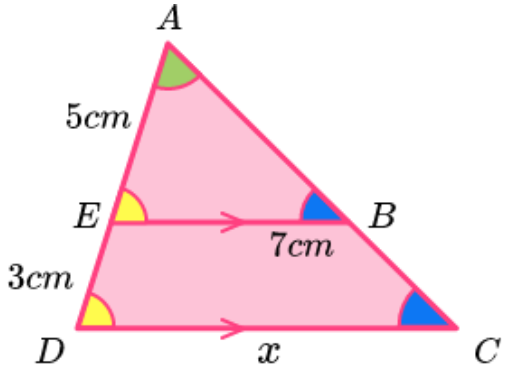
3 + 2 = 5 40 ÷ 5 = 8
3 x 8 = 24 red sweets



Proportion – Proportion is a type of relationship between two variables linked by a constant. There are two types, direct proportion and inverse proportion.
.

Ratio – Ratio is a relationship between two or more quantities showing the number of times one is contained within the others.

Similar Shapes



Number & Place Value | Calculation | Geometry | Statistics | Algebra | F.D.P | Others