

MATHS FACTS

SYMBOLS

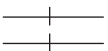
- + plus or add
- minus or subtract
- × multiplied by, times, lots of
- ÷ divided by, into groups of
- = equals, is equal to
- ≠ is not equal to
- ≈ is approximately equal to
- < is less than, $4 < 6$
- > is greater than, $8 > 5$
- ≤ is less than or equal to
- ≥ is greater than or equal to
- % percentage, $12\% = \frac{12}{100}$
- decimal point as in 7.9
- () parentheses, or brackets -
a grouping symbol
- $\frac{4}{7}$ fraction, $4 \div 7$, four sevenths



right angle



parallel lines



lines of equal length

Adding and subtracting 0

Adding and subtracting 0 to any number leaves the number unchanged.

$$\begin{array}{l} 3 + 0 = 3 \\ 2.5 + 0 = 2.5 \\ \frac{4}{9} + 0 = \frac{4}{9} \end{array} \qquad \begin{array}{l} 3 - 0 = 3 \\ 2.5 - 0 = 2.5 \\ \frac{4}{9} - 0 = \frac{4}{9} \end{array}$$

0 used in decimals

0's can be added when needed after the last digit and the decimal point.

$$4 = 4.000$$

0's can be added when needed before the first digit of the decimal number.

$$4 = 4.0 = 0004.0$$

By convention, decimal numbers less than 1 are written with a 0 before the decimal point.

$$.4 = 0.4$$

0 as a probability

When the probability of an event is 0, the event is 'impossible'.

0 in words

Some of the words used to represent 0 are: nought, nil, none, nothing, zilch, zip.

Multiplying by 0

The product of any number and 0 is 0

$$\begin{array}{l} 7 \times 0 = 0 \\ 81.6 \times 0 = 0 \\ \frac{3}{5} \times 0 = 0 \end{array}$$

Dividing by 0

Dividing by 0 is meaningless.

$4 \div 0$ and $\frac{3}{0}$ are meaningless operations.

Power of 0

Any number raised to the power of 0 is 1

$$\begin{array}{l} 1^0 = 1 \\ (0.5)^0 = 1 \\ (-24)^0 = 1 \end{array}$$

0 as the result of a sum

The sum of any number, except zero, and its opposite is 0

$$\begin{array}{l} 4 + (-4) = 0 \\ 2.6 + (-2.6) = 0 \\ \frac{5}{8} + \left(-\frac{5}{8}\right) = 0 \end{array}$$

0 facts

0 is a whole number and a digit but is neither a positive nor a negative number.

Multiplying by 1

Any number multiplied by **1** remains unchanged.

$$3 \times 1 = 3$$

$$2.5 \times 1 = 2.5$$

$$\frac{4}{9} \times 1 = \frac{4}{9}$$

Dividing by 1

Any number divided by **1** remains unchanged.

$$7 \div 1 = 7$$

$$81.6 \div 1 = 81.6$$

$$\frac{3}{5} \div 1 = \frac{3}{5}$$

1 as a fraction

1 can be renamed as a fraction whenever the numerator is the same as the denominator.



$$1 = \frac{2}{2}$$



$$1 = \frac{3}{3}$$



$$1 = \frac{4}{4}$$



$$1 = \frac{5}{5}$$

1 as a probability

When the probability of an event is **1**, the event is 'certain' to happen.

1 as a denominator

Any whole number can be written as a fraction with denominator **1**

$$20 = \frac{20}{1}$$

1 in words

Some of the words used to represent **1** are: one, a, an, each, single, unit.

Power of 1

Any number raised to the power of **1** remains unchanged

$$7^1 = 7$$

$$(6.8)^1 = 6.8$$

$$(-4)^1 = -4$$

1 as a percentage

1 is the same as 100%.

$$1 = \frac{100}{100} = 100\%$$

1 as the result of a product

The product of any number, except zero, and its reciprocal is **1**

$$4 \times \frac{1}{4} = 1$$

1 facts

1 is a whole number and a digit but not a prime number.

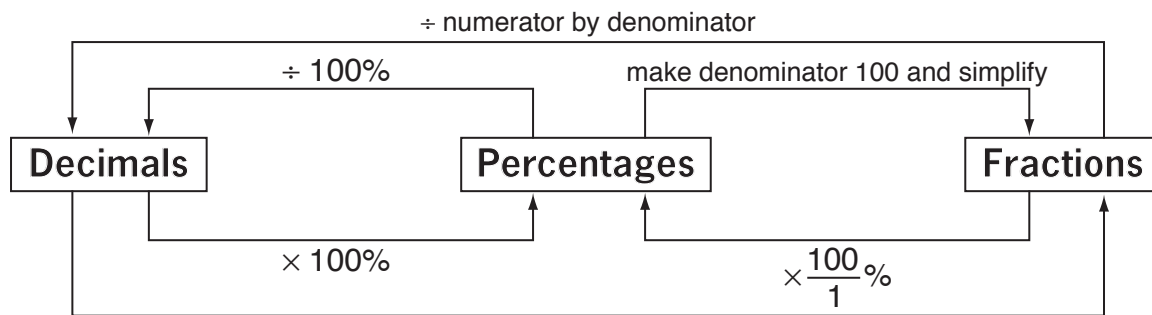
1 is a factor of any whole number.

NUMBER FACTS (3)

Place Value

millions	hundreds of thousands	tens of thousands	thousands	hundreds	tens	units	<i>decimal point</i>	tenths	hundredths	thousandths
1,000,000	100,000	10,000	1000	100	10	1	↓	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

Decimals / Fractions / Percentages



For denominator put 1 followed by one zero for each digit after the decimal point and simplify

Fraction	Decimal	Percentage
$\frac{1}{1}$	1	100%
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%

Fraction	Decimal	Percentage
$\frac{1}{5}$	0.2	20%
$\frac{2}{5}$	0.4	40%
$\frac{3}{5}$	0.6	60%
$\frac{4}{5}$	0.8	80%

Prime numbers < 100

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89 and 97

Operation terminology

Addition: sum, all together, in total, more than

Subtraction: difference, less than, change

Multiplication: product, times, lots of

Division: a fraction (half, third, quarter) of, quotient

Order of operations

- 1) Simplify inside all brackets first.
- 2) Evaluate powers and square roots.
- 3) Do all multiplications or divisions in order from left to right.
- 4) Do all additions or subtractions in order from left to right.

MEASUREMENT FACTS (1)

CONVERSIONS

Length

10 millimetres (mm) = 1 centimetre (cm)

$100 \text{ cm} =$
 $1000 \text{ mm} =$] 1 metre (m)

1000 m = 1 kilometre (km)

Temperature - degrees Celcius (°C)

0°C = freezing point of water

100°C = boiling point of water

37°C = human body temperature

Area

100 square mm (mm²) = 1 square cm (cm²)

10 000 cm² = 1 square metre (m²)

10 000 m² = 1 hectare (ha)

Mass

1000 milligrams (mg) = 1 gram (g)

1000 g = 1 kilogram (kg)

1000 kg = 1 tonne (t)

Liquid Capacity

1000 millilitres (mL) = 1 litre (L)

1000 L = 1 kilolitre (kL)

1000 kL = 1 megalitre (ML)

Time

60 seconds (s) = 1 minute (min)

60 minutes (min) = 1 hour (h)

24 hours (h) = 1 day

7 days = 1 week

2 weeks = 1 fortnight

4 weeks (approx.) = 1 month

$365 =$
 $52 \text{ weeks (approx.)} =$
 $12 \text{ months} =$] 1 year

366 days = 1 leap year

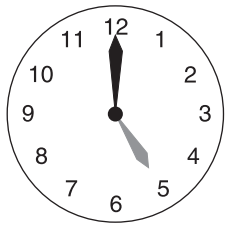
10 years = 1 decade

100 years = 1 century

MEASUREMENT FACTS (2)

TIME

O'CLOCK



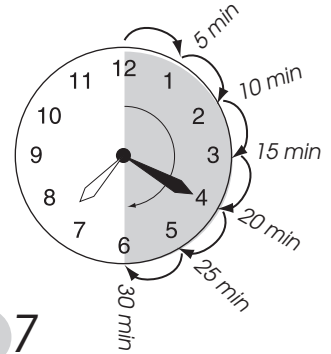
five o'clock

5:00

BIG HAND
on 12
LITTLE HAND
on the hour

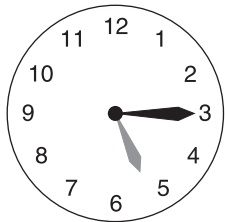
ANALOGUE - PAST

PAST -
big hand to the right



20 minutes past 7

A QUARTER PAST



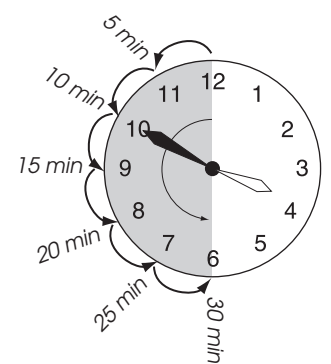
a quarter past five

5:15

BIG HAND
on 3
LITTLE HAND
past the hour

ANALOGUE - TO

TO -
big hand to the left



10 minutes to 4

HALF PAST

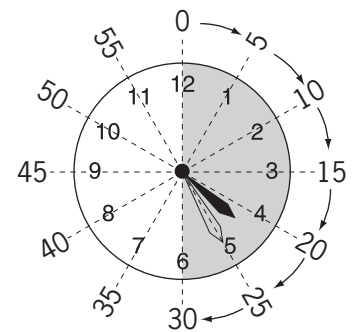


half past five

5:30

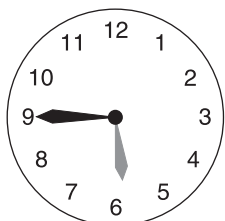
BIG HAND
on 6
LITTLE HAND
half way past
the hour

DIGITAL - PAST



4:25

A QUARTER TO

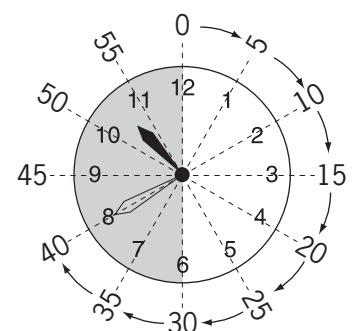


a quarter to six

5:45

BIG HAND
on 9
LITTLE HAND
before the hour

DIGITAL - TO



10:40

GEOMETRY FACTS

2D shapes

Acute $< 90^\circ$	Right 90°	Obtuse more than 90° less than 180°	Straight 180°	Reflex more than 180° less than 360°	Revolution 360°

Triangle types

Sides and angles	Triangle type
no equal sides/angles	scalene
two equal sides/angles	isosceles
three equal sides/angles	equilateral

Angles	Triangle type
all acute angles	acute-angled
one right angle	right-angled
one obtuse angle	obtuse-angled

Quadrants

There are 4 quadrants in a Cartesian plane.

In this Cartesian plane coordinates $(-3, 2)$ are in quadrant 2.

