


Math Facts

SYMBOLS

+	plus or add	$3x$	3 times x , 3 lots of x
-	minus or subtract	$3(x)$	
\times	multiplied by, times, lots of	$a:b$	ratio of a to b
\div	divided by, into groups of	-3	negative 3
=	equals, is equal to	π	pi, ≈ 3.14 or $\frac{22}{7}$, ratio of circumference to diameter for a circle
\neq	is not equal to	$\triangle ABC$	triangle with vertices A , B and C
\approx	is approximately equal to		right angle
<	is less than, $4 < 6$		
>	is greater than, $8 > 5$		
\leq	is less than or equal to		
\geq	is greater than or equal to		
%	percent, $12\% = \frac{12}{100}$		
.	decimal point as in 7.9		
$^\circ$	degree, a right angle measures 90°		
(a,b)	ordered pair with x -coordinate a and y -coordinate b		
l	length		
w	width		
h	height		
b	base length		
P	perimeter		
r	radius		
C	circumference		
A	area		
V	volume		
6^4	6 raised to the 4 th power, $6 \times 6 \times 6 \times 6$		
$\sqrt{9}$	square root of 9		
()	parentheses, or brackets - a grouping symbol		
$\frac{4}{7}$	fraction, $4 \div 7$, four sevenths		

MEASURES - metric

Length

10 millimeters (mm) = 1 centimeter (cm)

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

1000 m = 1 kilometer (km)

Mass

1000 milligrams (mg) = 1 gram (g)

1000 g = 1 kilogram (kg)

1000 kg = 1 tonne (t)

Liquid Capacity

$1000 \text{ milliliters (mL)} =$
 $1000 \text{ cm}^3 =$] 1 liter (L)

1000 L = 1 kiloliter (kL)

Temperature - degrees Celsius ($^{\circ}\text{C}$)

0°C = freezing point of water

37°C = human body temperature

100°C = boiling point of water

Area

100 square mm (mm^2) = 1 square cm (cm^2)

10,000 cm^2 = 1 square metre (m^2)

10,000 m^2 = 1 hectare (ha)

1,000,000 m^2 = 1 square km (km^2)

Volume

1000 cubic mm (mm^3) = 1 cubic cm (cm^3)

1,000,000 cm^3 = 1 cubic metre (m^3)

MEASURES - customary

Length

12 inches (in.) = 1 foot (ft)

$3 \text{ ft} =$
 $36 \text{ in.} =$] 1 yard (yd)

$5280 \text{ ft} =$
 $1760 \text{ yd} =$] 1 mile (mi)

Mass

16 ounces (oz) = 1 pound (lb)

2000 lb = 1 ton (t)

Liquid Capacity

8 fluid ounces (fl oz) = 1 cup (c)

2 c = 1 pint (pt)

2 pt = 1 quart (qt)

4 qt = 1 gallon (gal)

Temperature - degrees Fahrenheit ($^{\circ}\text{F}$)

32°F = freezing point of water

98.6°F = human body temperature

212°F = boiling point of water

Time

60 seconds (s) = 1 minute (min)

60 minutes (min) = 1 hour (h)

24 hours = 1 day

7 days = 1 week

4 weeks (approx.) = 1 month

$365 \text{ or } 366 \text{ days} =$
 $52 \text{ weeks (approx.)} =$] 1 year

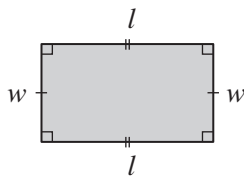
12 months =

10 years = 1 decade

100 years = 1 century

GEOMETRIC FORMULAS

Rectangle



$$\text{Perimeter} = 2 \times \text{length} + 2 \times \text{width}$$

$$P = 2l + 2w$$

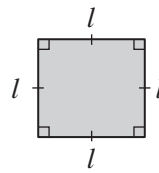
$$P = 2(l + w)$$

$$\text{Area} = \text{length} \times \text{width}$$

$$A = l \times w$$

$$A = lw$$

Square



$$\text{Perimeter} = 4 \times \text{length}$$

$$P = 4 \times l$$

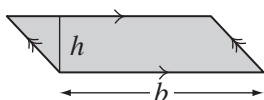
$$P = 4l$$

$$\text{Area} = (\text{length})^2$$

$$A = l \times l$$

$$A = l^2$$

Parallelogram

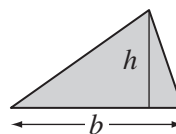


$$\text{Area} = \text{base} \times \text{height}$$

$$A = b \times h$$

$$A = bh$$

Triangle

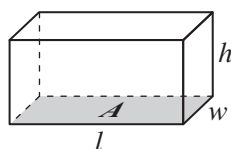


$$\text{Area} = \frac{\text{base} \times \text{height}}{2}$$

$$A = \frac{b \times h}{2}$$

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

Prism



$$\text{Volume} = \text{length} \times \text{width} \times \text{height}$$

$$V = l \times w \times h$$

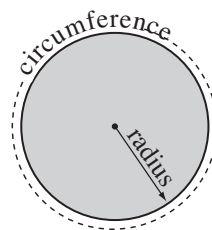
$$V = lwh$$

$$\text{or } V = \text{Area} \times \text{height}$$

$$V = A \times h$$

$$V = Ah$$

Circle



$$\text{Circumference} = 2 \times \pi \times \text{radius}$$

$$C = 2\pi r$$

$$\text{Area} = \pi \times \text{radius}^2$$

$$A = \pi r^2$$

$$\text{where } \pi \approx 3.14 \text{ or } \frac{22}{7}$$

GEOMETRIC PREFIXES

poly - many

gon - angle

mono - one

hexa - six

equi - equal

lateral - side

bi or di - two

hepta - seven

hedra - face

hedron - face

tri - three

octa - eight

quad or tetra - four

nona - nine

penta - five

deca - ten

ZERO

Adding and subtracting 0

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

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

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 zero 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 zero 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.

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

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 number is 0

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

0 facts

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

ONE

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.



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



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



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



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

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 probability

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

1 as a percent

1 is the same as 100%.

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

1 as a denominator

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

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

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 in words

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

1 facts

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

1 is a factor of any whole number.