

$$1 \text{ mL} = \text{cm}^3$$

$$1 \text{ L} = 1000 \text{ mL} = 1000 \text{ cm}^3$$

$$1 \text{ kL} = 1000 \text{ L} = 1 \text{ m}^3$$

$$1 \text{ cm} = 10 \text{ mm}$$

$$1 \text{ cm}^2 = 100 \text{ mm}^2$$

$$1 \text{ cm}^3 = 1000 \text{ mm}^3$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ m}^2 = 10000 \text{ cm}^2$$

$$1 \text{ m}^3 = 1000000 \text{ cm}^3$$

$$1 \text{ km} = 1000 \text{ m}$$

$$1 \text{ kg} = 1000 \text{ g}$$

$$1 \text{ tonne} = 1000 \text{ kg}$$

profit : selling price (SP) - cost price (CP)

loss : CP - SP

$$\text{profit \%} : \frac{\text{SP} - \text{CP}}{\text{CP}} \times 100$$

$$\text{loss \%} : \frac{\text{CP} - \text{SP}}{\text{CP}} \times 100$$

simple interest :

$$i = \frac{P \times r \times t}{100}$$

$$A = P + I$$

compound interest :

$$A = P \left(1 + \frac{r}{100}\right)^t$$

speed = distance \div time

distance = speed \times time

time = distance \div speed

average speed : total distance \div total time

$$\text{length} : \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\text{midpoint} : \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

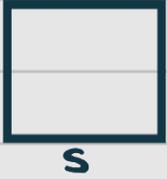
$$a_n = a_1 + (n-1) \times d$$

acceleration = speed \div time



Rectangle:

area: $L \times W$, perimeter: $2(L+W)$



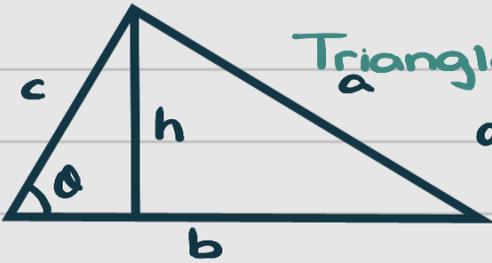
Square:

area: s^2 , perimeter: $4s$



Parallelogram:

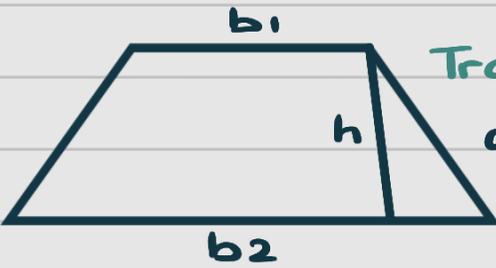
area: $b \times h$, perimeter: $2(a+b)$



Triangle:

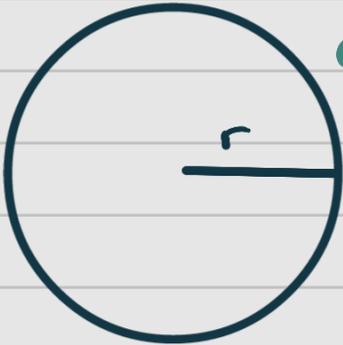
area: $\frac{1}{2}bh$, perimeter: $a+b+c$

$\frac{1}{2}ab \times \sin \theta$



Trapezoid:

area: $(\frac{b_1+b_2}{2}) \times h$, perimeter: Sum



Circle:

area: πr^2 , perimeter (circumference): $2\pi r$



Semicircle:

area: $\frac{1}{2}\pi r^2$, perimeter: $\pi r + 2r$



Sector:

area: $\frac{\pi}{360} \times \pi r^2$

length: $\frac{\pi}{360} \times 2\pi r$

Cylinder:

Surface area: volume:

. curved: $2\pi rh$. $\pi r^2 h$

. total: $2\pi r(h+r)$

Cone:

Surface area: volume:

. curved: $\pi r l$. $\frac{1}{3}\pi r^2 h$

. $l = \sqrt{r^2 + h^2}$

. total: $\pi r(l+r)$

Sphere:

Surface area: volume:

. $4\pi r^2$. $\frac{4}{3}\pi r^3$

Pyramid:

Surface area: volume:

. base area + area of shapes $\frac{1}{3} \times bA \times \text{perpen. } h$

Cuboid:

Surface area: volume: height:

. $2lw + 2lh + 2hw$. $l \times b \times h$. volume \div length

Cube:

Surface area: volume:

. $6l^2$. l^3

Hemisphere:

Surface area: volume:

. curved: $2\pi r^2$. $\frac{2}{3}\pi r^3$

Upper bound = upper bound / lower bound

Lower bound = lower bound / upper bound

$$y = mx + c$$

Frequency density = Frequency \div class width

$$\left(\frac{l_1}{l_2}\right)^2 = A_1/A_2$$

$$\left(\frac{l_1}{l_2}\right)^3 = V_1/V_2$$

$$\text{gradient} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m_{\perp} = -1/m$$

inverse = adjoint/determinant

$$\text{adjoint} = \begin{pmatrix} a & b \\ c & d \end{pmatrix} \rightarrow \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$$

$$\text{determinant} = (a \times d) - (b \times c)$$

$$\text{area of polygon} = \frac{1}{2} ap$$

$$a = \frac{s\sqrt{3}}{2}$$

quadratic sequence:

$$g_n = an^2 + bn + c$$

$$2a$$

$$3a + b$$

$$a + b + c$$

cubic sequence:

$$g_n = an^3 + bn^2 + cn + d$$

$$6a$$

$$12a + 2b$$

$$7a + 3b + c$$

$$a + b + c + d$$