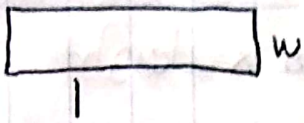
# Formulas for perimeter, area, surface, volume

## Shapes




## Formulas

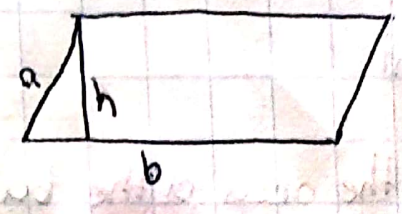
### Rectangle

Area = Length x Width

$A = lw$

Perimeter = 2 x Lengths + 2 x widths

$P = 2l + 2w$

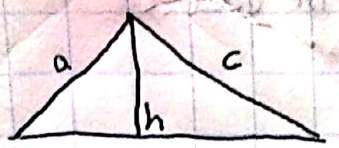



### Parallelogram

Area = Base x Height $A = bh$

Perimeter = add the length of all sides

$P = 2a + 2b$

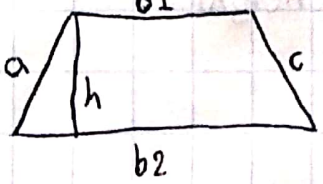



### Triangle

Area = 1/2 of the base x the height

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

Perimeter = a+b+c (add the length of the three sides)




### Trapezoid

Area = 1/2 of the base x the height

$A = \frac{(b1+b2)}{2}h$

Perimeter = add lengths of all sides

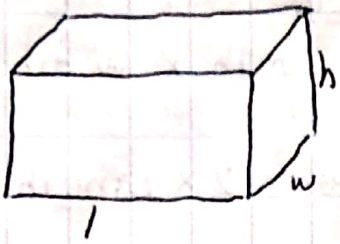
$P = a + b1 + b2 + c$


### Circle

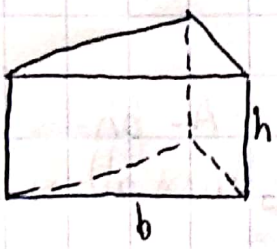
Radius = the distance from the center to a point on the circle (r).

Diameter = the distance between two points on the circle through the center ($d = 2r$)

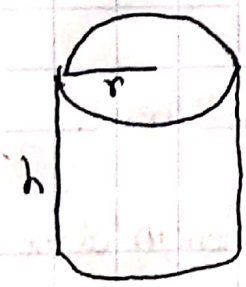
Circumference = the distance around the circle ($C = \pi d = 2\pi r$) ($\pi = 3.14$) Area = $\pi r^2$




Rectangular solid
Volume = Length x width x Height
$V = lwh$
surface $= 2lw + 2lh + 2wh$

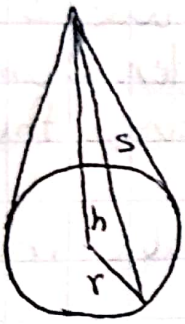



Prisms
Volume = Base x Height
$V = bh$
Surface $= 2b + Ph$ (b is the area of the base
P is the perimeter on the base)




Cylinder
Volume $= \pi r^2 \times$ height
$V = \pi r^2 h$
Surface $= 2\pi$ radius x height
$S = 2\pi rh + 2\pi r^2$


Pyramid
Volume = 1/3 area of the base x height
$V = \frac{1}{3}bh$ b is the area of the base
Surface area: Add the area of the base to the sum of the areas of all of the triangular faces. The areas of the triangular faces will have different formulas for diferent shaped bases.




Cones

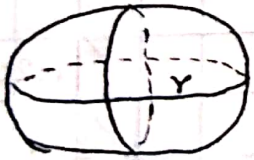
Volume = 1/3 area of the base × height

$V = \frac{1}{3} \pi r^2 h$

Surface

$S = \pi r^2 + \pi r s$

$= \pi^2 + \pi r \sqrt{r^2 + h^2}$




Sphere

Volume

$V = \frac{4}{3} \pi r^3$

Surface

$S = 4 \pi r^2$