



FORMULAS



PERIMETER			
Square	$P = 4l$		
Rectangle	$P = 2l + 2w$		
Circle (Circumference)	$C = 2\pi r$ or $C = \pi d$		
AREA			
Square	$A = s^2$		
Rectangle	$A = l * w$		
Triangle	$A = \frac{1}{2}bh$		
	$A = \frac{1}{2}ab * \sin c$		
Parallelogram	$A = b * h$		
Trapezium	$A = \frac{a + b}{2} * h$		
Circle	$A = \pi r^2$		
Semicircle	$A = \frac{\pi r^2}{2}$		
SURFACE AREA			
Sphere	$A = 4\pi r^2$		
Cone	$A = \pi r l$		
Cylinder	$A = 2\pi r h$		
VOLUME			
Cube	$V = s^3$		
Cuboid	$V = l * w * h$		
Cylinder	$V = \pi r^2 h$		
Prism	$V = \text{area of cross section} * l$		
Sphere	$V = \frac{4}{3}\pi r^3$		
Cone	$V = \frac{1}{3}\pi r^2 h$		
Pyramid	$V = \frac{1}{3}\text{area of base} * h$		
TRIGONOMETRY			
Sine Rule	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$		
Cosine Rule	$a^2 = b^2 + c^2 - 2bc \cos A$		
Trig Ratios	$\frac{\text{Tan}}{\text{Adj}}$	$\frac{\text{Sin}}{\text{Hyp}}$	$\frac{\text{Cos}}{\text{Hyp}}$
	$\frac{\text{Opp}}{\text{Adj}}$	$\frac{\text{Opp}}{\text{Hyp}}$	$\frac{\text{Adj}}{\text{Hyp}}$
Pythagoras	$a^2 + b^2 = h^2$		

GRAPHS		
Slope (St. Line)		$\frac{y_2 - y_1}{x_2 - x_1}$
MidPoint of Line		$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
QUADRATIC FORMULA		
$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$		
TRANSFORMATIONS		
Reflection	x-axis	$(x, y) = (x, -y)$
	y-axis	$(x, y) = (-x, y)$
	$y = x$	$(x, y) = (y, x)$
	$y = -x$	$(x, y) = (-y, -x)$
Rotation	90°	$(x, y) = (-y, x)$
	180°	$(x, y) = (-x, -y)$
	270°	$(x, y) = (y, -x)$
Translation	$T_{(a,b)}$	$(x + a, y + b)$
Enlargement	$E_{(k)}$	(kx, ky)

Polyhedra	Base	No. of faces	No. of vertices	No. of edges	Nets
cube		6	8	12	
triangular prism		5	6	9	
square prism		6	8	12	
rectangular prism		6	8	12	
pentagonal prism		7	10	15	
hexagonal prism		8	12	18	
octagonal prism		10	16	24	
triangular pyramid		4	4	6	
square pyramid		5	5	8	
rectangular pyramid		5	5	8	
pentagonal pyramid		6	6	10	
hexagonal pyramid		7	7	12	
octagonal pyramid		9	9	16	