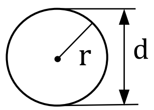
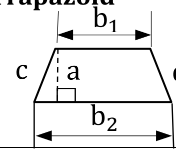
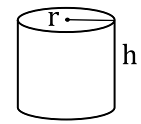
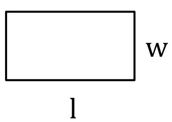
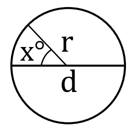
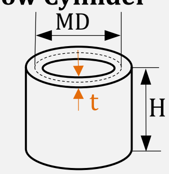
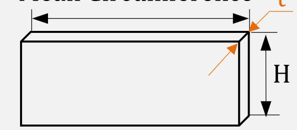
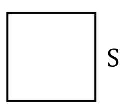
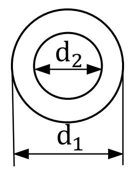
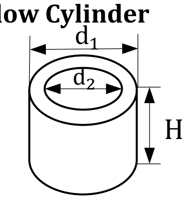
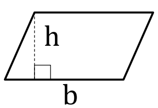
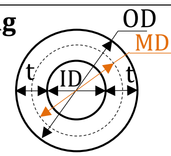
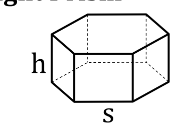
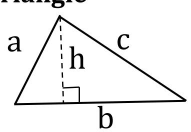
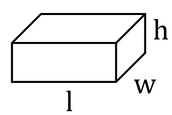
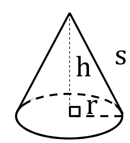
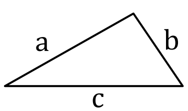
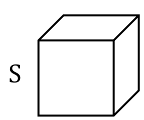
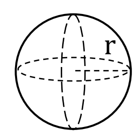
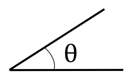
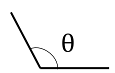
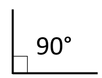
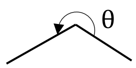
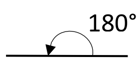
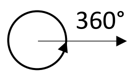
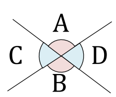
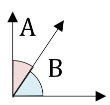
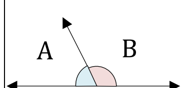
Geometry & Trigonometry Formulas

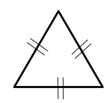
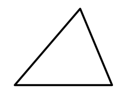
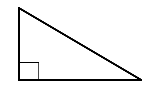
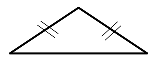
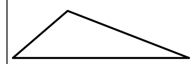
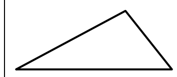
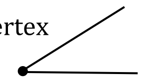
Circle 	$C = 2\pi r$ or $C = \pi d$ $A = \pi r^2$ $r = d/2$	**Trapazoid** 	$P = c + d + b_1 + b_2$ $A = \frac{1}{2}(b_1 + b_2)a$	**Cylinder** 	Surface area $= 2\pi r^2 + 2\pi rh$ Lateral Surface area $= 2\pi rh$ $V = \pi r^2 h$
Rectangle 	$P = 2(l + w)$ $A = l \times w$	**Sector** 	Length of arc $= 2\pi r\left(\frac{x°}{360°}\right)$ Sector Area $= \pi r^2\left(\frac{x°}{360°}\right)$	**Hollow Cylinder** 	Mean Circumference  $\mathbf{V} = \pi \cdot MD \times t \times H$
Square 	$P = 4S$ $A = S^2$	**Ring** 	$A = \pi(r_1^{\,2} - r_2^{\,2})$ $A = 0.7854(d_1^{\,2} - d_2^{\,2})$ $r_1 = d_1/2\,,\;\; r_2 = d_2/2$	**Hollow Cylinder** 	$V =$ Area of base $\times$ height $= (\pi\, r_1^{\,2} - \pi\, r_2^{\,2})H$ $r_1 = d_1/2\,,\;\; r_2 = d_2/2$
Parallelogram 	$A = b \times h$	**Ring** 	$OD = ID + 2t$ $ID = OD - 2t$ $MD = ID + t = OD - t$ Mean Circumference$= \pi \cdot MD$	**Right Prism** 	**Surface area**= base areas + lateral surface areas **Lateral Surface Area**= sum of lateral surface areas **Volume**=base area $\times$ h
Triangle 	$P = a + b + c$ $A = \frac{1}{2}bh$	**Rectangular Solid** 	Surface Area $= 2(lw + lh + wh)$ $V = lwh$	**Cone** 	Surface area $= \pi r^2 + \pi rs$ Lateral surface area $= \pi rs$ $V = \frac{1}{3}\pi r^2 h$
Scalene Triangle 	$P = a + b + c$ Heron's Formula $A = \sqrt{s\,(s-a)(s-b)(s-c)}$ where, $s = \frac{a+b+c}{2}$	**Cube** 	Surface Area$= 6S^2$ Volume$= S^3$	**Sphere** 	Surface area $= 4\pi r^2$ $V = \frac{4}{3}\pi r^3$

Geometry & Trigonometry Formulas

Types of Angles

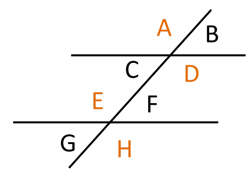
	Acute Angle	$0° < \theta < 90°$
	Obtuse Angle	$90° < \theta < 180°$
	Right Angle	=90°
	Reflex Angle	$180° <$ angle $< 360°$
	Straight Angle	=180°
	Complete Angle	=360°
	Opposite Angles	<A=<B, <C=<D
	Complementary	<A+<B=90°
	Supplementary	<A+<B=180°

Types of Triangles

	Equilateral Triangle (all sides are equal)		Acute Triangle (all angles $< 90°$)		Right Triangle (one angle $= 90°$)
	Isosceles Traingle (two sides are equal)		Obtuse Triangle (one angle $> 90°$)		Scalene Triangle (any type)
Vertex 	The point where two straight rays or line segments meet				

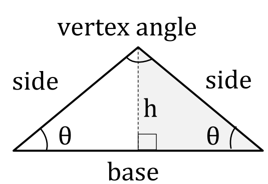
Sum of interior angles of a triangle = 180°

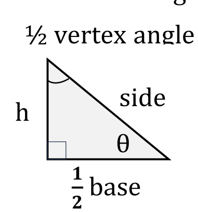
Angles formed within **parallel lines**



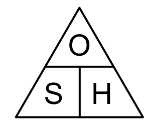
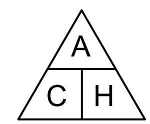
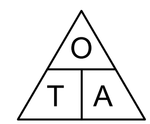
Vertical angles are equal <A=<D
Corresponding angles are equal <A=<E
Alternate interior angles are equal <D=<E
Alternate exterior angles are equal <A=<H

Discover Right triangles within isosceles triangles

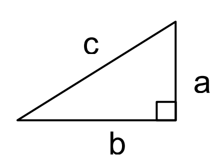




Trigonometric Ratios

		
$\sin\theta = \frac{O}{H}$ $O = H \times \sin\theta$ $H = \frac{O}{\sin\theta}$	$\cos\theta = \frac{A}{H}$ $A = H \times \cos\theta$ $H = \frac{A}{\cos\theta}$	$\tan\theta = \frac{O}{A}$ $O = A \times \tan\theta$ $A = \frac{O}{\tan\theta}$
A – adjacent	O – opposite	H - hypotenuse
$\theta = \sin^{-1}\left(\frac{O}{H}\right)$	$\theta = \cos^{-1}\left(\frac{A}{H}\right)$	$\theta = \tan^{-1}\left(\frac{O}{A}\right)$

Pythagorean Theorem



$a^2 + b^2 = c^2$ $\quad c = \sqrt{a^2 + b^2}$

$c^2 - b^2 = a^2$ $\quad a = \sqrt{c^2 - b^2}$

$c^2 - a^2 = b^2$ $\quad b = \sqrt{c^2 - a^2}$