macro

Sec 3 E Maths

Trigonometry

Key Ratios



RULE	EXPLANATION	MATHAMETICAL EXAMPLE
SOH	SINE = OPPOSITE / HYPOTENUSE	$\sin(x) = \frac{YZ}{XY}$
CAH	COSINE = ADJACENT / HYPOTENUSE	$\cos\left(x\right) = \frac{XZ}{XY}$
TOA	TANGENT = OPPOSITE / ADJACENT	$\tan\left(x\right) = \frac{YZ}{XZ}$

www.macroacademy.org

If you need a miracle in E Math, text us at +65 8366 2396

Angle of Elevation



From point O, the angle of depression will be $\angle \text{COB}$

Triangle Formulae





Triangle Formulas



Degree-to-Radian conversion

$$180^{\circ} = \pi \ radians$$

Upper Sec Maths

Trigonometry

Angle of Elevation/Depression

Obtuse Angles (in degrees)





macro Trigonometry

Important Identities Key Values tan(x) = sin(x)/cos(x)Sine (sin) = Opposite/Hypothenuse 0 Angle x $45/\frac{\pi}{4}$ $30/\frac{\pi}{\epsilon}$ YAdjacent (degree/radians) sec(x) = 1/cos(x) Tangent (tan) = Opposite/Adjacent Hypothenuse Cosine (cos) = Adjacent/Hypothenuse sin(x) 0 $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ cosec(x) = 1/sin(x) $\cot(x) = 1/\tan(x)$ 1 $\frac{\sqrt{3}}{2}$ $\frac{1}{\sqrt{2}}$ cos(x) sin(x) = cos(90-x)Z 0 $\frac{1}{\sqrt{3}}$ 1 tan(x) $\cos(x) = \sin(90-x)$ **Reference Angle**

Upper Sec E Maths

Key Addition/Subtraction Formulas

Triangle Formulas



Double Angle Formula

Key Ratios

Degree-to-Radian conversion

 $60/\frac{\pi}{3}$

2

 $\frac{1}{2}$

 $\sqrt{3}$

 $90/\frac{\pi}{2}$

1

0

Undefined

$$egin{aligned} &\cos\left(2x
ight) = \cos^2x - \sin^2x = 1 - 2\sin^2x = 2\cos^2x - 1\ &\sin\left(2x
ight) = 2\sin x\cos x\ & an\left(2x
ight) = rac{2 an x}{1 - an^2x} \end{aligned} egin{aligned} &360^\circ = 2\pi radians\ &180^\circ = \pi radians\ &90^\circ = rac{\pi}{2} radians \end{aligned}$$

Upper Sec Maths

macro Trigonometry

Angle of Elevation/Depression



Obtuse Angles (in degrees)

Graphs

