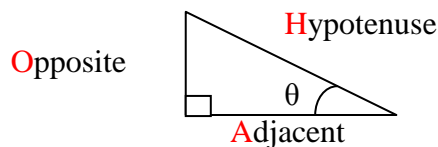


Trigonometry

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Trigonometry links the three sides of the triangle to the three internal angles and their ratios and relationships to each other. In this worksheet it will be restricted to right angled triangles using SOHCAHTOA and the triangle linkage.

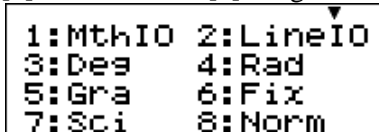


There are three angle measurements that can be used:
Degrees (°) Radians (R) Gradients (G)

Make sure that you are in the angle measure consistent with the type of angle measurement being used in the problem to be solved.

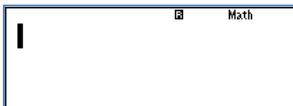
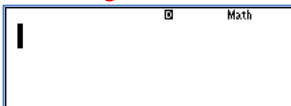
To change the angle measurement settings

Press **SHIFT SETUP**, then press either [3] for degrees, [4] for radians or [5] for gradients.



Set in **degrees**.

Set in **radians**.



The 'D' represents degrees. The 'R' represents radians.

Set in **gradients**.



The 'G' represents gradients.

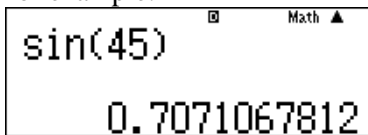
[Note: Grad is not used in New Zealand. Deg is use in NCEA Level 1, 2 and 3. Rad is used in NCEA Level 2 and 3.]

Entering Trigonometric expressions

Enter the trigonometric ratio [sin, cos, tan] followed by the angle.

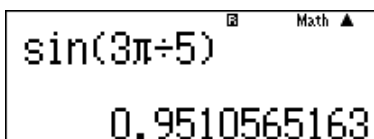
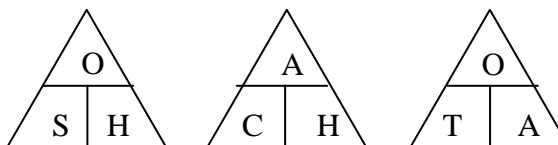
Note: That an open bracket is 'attached', make sure that you close the bracket, then [=] to complete the calculation.

For example:



Using degrees: $\sin(45^\circ) = 0.7071$ (4 d.p.)

The mnemonic SOHCAHTOA links the 3 trigonometric relationships. This can also be drawn from the three triangle relationships, illustrated below.



Using radians: $\sin\left(\frac{3\pi}{5}\right) = 0.9511$ (4 d.p.)

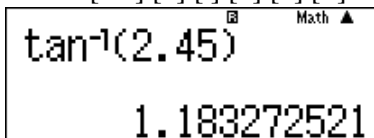
Using inverse trigonometry expressions

Solving an equation like: $\tan(\theta) = 2.45$

Then $\theta = \tan^{-1}(2.45)$.

The button sequence would be:

SHIFT [tan] [2] [.] [4] [5] [=]



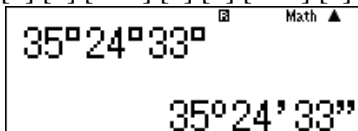
$\theta = 1.183$ (3 d.p.) radians.

Using Degrees, minutes and seconds

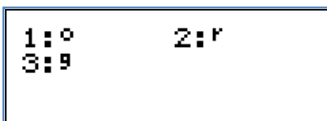
The [° ' "] key is used.

For entering 35° 24' 33" the sequence would be:

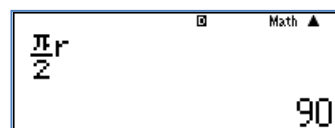
[3] [5] [° ' "] [2] [4] [° ' "] [3] [3] [° ' "] [=]



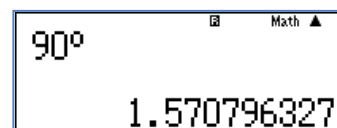
Radians to Degrees and Degrees to Radians



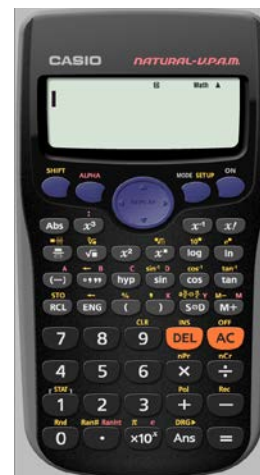
SHIFT [Ans]



Set in degrees.



Set in radians.



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