

Lesson 2

GCSE Mathematics Non-Right Angled Trigonometry

2.1 Relationships

Mathematicians write; $\sin^2 x$ when they mean $(\sin x)^2$
 $\cos^2 x$ when they mean $(\cos x)^2$
 $\tan^2 x$ when they mean $(\tan x)^2$

Fill in the table below, using your calculator and working to three decimal places.

	$\sin x$	$\cos x$	$\tan x$	$\sin^2 x$	$\cos^2 x$	$\frac{\sin x}{\cos x}$	$\cos^2 x + \sin^2 x$
0°							
10°							
20°							
30°							
40°							
50°							
60°							
70°							
80°							
90°							

Looking over your table of results, can you spot two interesting relationships ?
One "always true formula" involves $\sin x$, $\cos x$ and $\tan x$.
Write it down here:

The other involves $\cos^2 x$, the number 1, and $\sin^2 x$.
Write it down here:

Check that your "always true formulae" (that will be true no matter what the value of x is, work for the example of when $x = 35^\circ$.
Show your working here;

These two "always true formulae" are examples of trigonometric identities. Unlike an equation which is typically only true for one or two values of x (and solving an equation is about finding those special values of x) an identity is true for all (or almost all as division by zero is not allowed, for example) values of x .

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Teachers may obtain detailed worked solutions to the exercises by email from MHShrewsbury@Gmail.com