

Re: Would someone be so kind as to help me with a math equation?

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From: Narasimham (*mathma18_at_hotmail.com*)

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Dark Alchemist wrote:

> *I am trying to convert a sin into a cos but all I could come up with
> was the half angle formula which does not give me any negatives. The
> half angle formula has the correct number but it loses the sign.*

>

> *Formula I tried (simplified) was*

>

> $x = \sin(\text{angle})$

> $y = \sqrt{1 - x^2}$

>

> *At first I thought I had it because of this*

>

> *....Sin.....Cos.....Results from the formula above*

> -0.95297934 -0.30303527 0.30303528

> -0.95486454 -0.29704159 0.2970416

> -0.95671205 -0.29103617 0.29103617

> -0.95852179 -0.28501927 0.28501926

> -0.96029369 -0.27899111 0.27899109

> -0.96202767 -0.27295194 0.27295194

> -0.96372368 -0.26690199 0.26690199

> -0.96538164 -0.26084151 0.2608415

> -0.96700149 -0.25477073 0.25477072

>

> *but when I tested it more I found this*

>

> *....Sin.....Cos.....Results from the formula above*

> 0.05024432 -0.99873696 0.99873696

> 0.04396812 -0.99903293 0.99903293

> 0.03769018 -0.99928947 0.99928947

> 0.03141077 -0.99950656 0.99950656

> 0.0251301 -0.99968419 0.99968419

> 0.01884845 -0.99982235 0.99982235

> 0.01256604 -0.99992104 0.99992104

> 0.00628315 -0.99998026 0.99998026

>

sci.math: Re: Would someone be so kind as to help me with a math equation?

- > *Notice the digits are correct (within the tolerance of the program I*
- > *used) but I lost their sign. Now the only numbers I know or can*
- > *manipulate is x after the sinewave has been created.*
- >
- > *Is there a formula for a full angle as there is for a half angle?*
- > *Thank you.*

Resolving a signal to sin/cos components is straight forward. But in the opposite direction, trying to find cos from sin or vice versa entails dealing with two sign possibilities in each quadrant. All Silver Tea Cups (All, Sin, Tan, Cos) rule helps find correct sign of sin and cos in each quadrant. Draw a graph of sin and cos (angle 0 to 2 Pi) and see which quadrants give sin / cos positive or negative, write small program to decide sign depending on $\text{Int}[\text{angle}/(\pi/2)] + 1 = n$.