USING TRIG IDENITIES
By Chris I

Ya, I feel you.

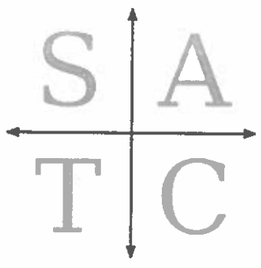
So here are the basic ideas that you want to
Memorize if you even want a chance
With these identities:

$\sin^2x + \cos^2x = 1$
$\tan x = \sin x/\cos x$
$\sec x = 1/\cos x$
$\sin^2x = 1-\cos^2x$

$\tan^2x + 1 = \sec^2x$

$\csc x = 1/\sin x$

$\cot^2x + 1 = \csc^2x$
$\cot x = \cos x/\sin x$
$\cot x = 1/\tan x$
$\cos^2x = 1-\sin^2x$



Quadrant 1: All trig functions are +

Quadrant 2: Sine is +

Quadrant 3: Tangent is +

Quadrant 4: Cosine +

Remember: ***A***ll ***S***tudents ***T***ake ***C***alculus

These ideas are pretty straight forward. Just understand when trying to tackle a problem, this is what you need to succeed in the end! I mean, ya, they look easy now... JUST WAIT! HAHAHAHHAAHAHAHAHAHAHAHA. No? Not funny? Ok....

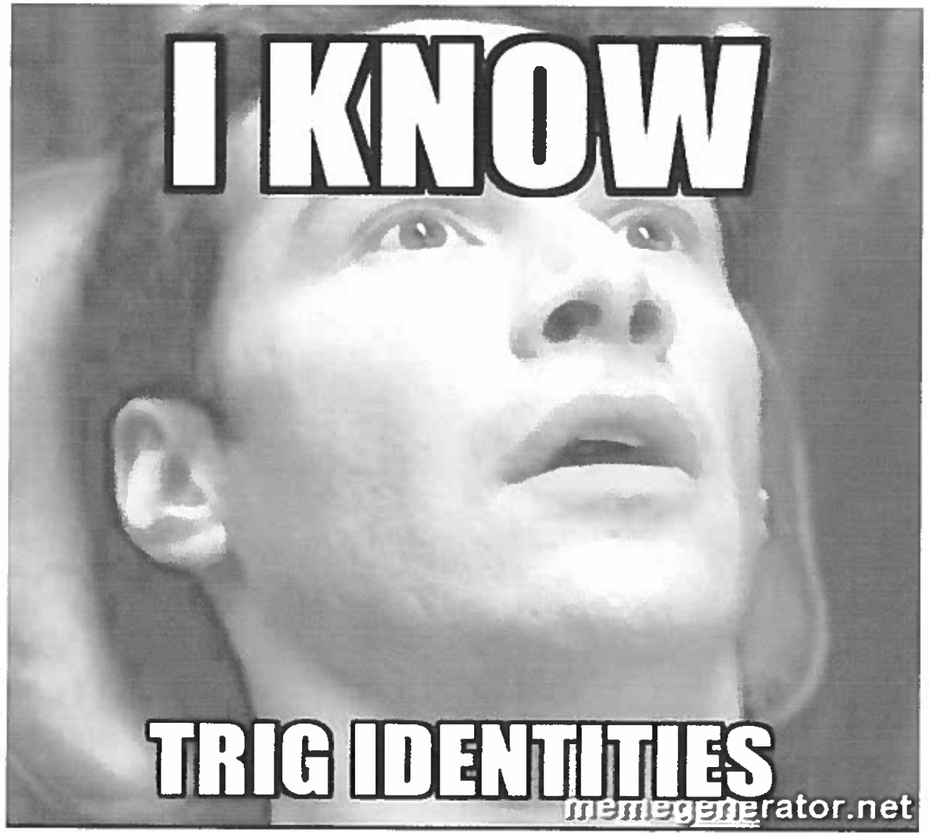
1. Given Sinx = 2/5, and $\frac{\pi}{2} < x < \pi$. Find the values of the other five trig functions.

Yes I understand 3 is not half of 5 but its close enough

2. TanA + Cot A = SecACscA

5. $\frac{SinxCotx+Cos^2x}{1+Cosx}$ = Cosx

CONGRATS YOUNG PADWAN. You have successfully been terribley taught by yours truly to understand and know Tirg Proofs. Now, you will pass this final and be really cool. Duh. Hope you enjoyed my great memes.



Answers:

Question 1: Given Sinx = 2/5, and $\frac{\pi}{2} < x < \pi$. Find the values of the other five trig functions.

$Sin^2x + Cos^2x = 1$

$(2/5)^2 + Cos^2x = 1$

$4/25 + Cos^2x = 1$

-4/25 -4/25

$\sqrt{Cos2x} = \sqrt{21/25}$ 21/25 = .84 2/5= .4

$Cosx = \pm .917$

Cosx = -.917 ← It's in Quad II

Now for the rest...

Tanx=Sinx/Cosx .84/-.917 = -916 Secx = 1/Cosx 1/-.917 = -1.09

Cscx = 1/Sinx 1/.4 = 2.5 Cotx = Cosx/Sinx -.917/.84 = -1.09

Question 2: TanA + Cot A = SecACscA

$$\frac{SinA}{CosA} + \frac{CosA}{SinA}$$

$$\frac{SinA\ x\ SinA}{SinA\ x\ CosA} + \frac{CosA\ x\ SinA}{SinA\ x\ CosA}$$

$$\frac{Sin^2A + Cos^2A}{SinACosA} \rightarrow \frac{1}{SinACosA} \rightarrow SecACscA = SecACscA$$

Question 3: $Sin^2x\ (1+tan^2x) = tan^2x$

$$Sin^2x(Sec^2x) \rightarrow Sin^2x\ (\frac{1}{Cos^2x})$$

$$\frac{Sin^2x}{Cos^2x} \rightarrow Tan^2x = Tan^2\ x$$

Question 4: $\frac{CosxSin2x}{1-Cosx} = Cosx + Cos^2x$

$$\frac{Cosx(1-Cos^2x)}{1-Cosx} \rightarrow \frac{Cosx(1-Cosx)(1+Cosx)}{1-Cosx}$$

$Cosx(1+Cosx) \rightarrow Cosx + Cos^2x = Cosx + Cos^2x$

Question 5: $\frac{SinxCotx+Cos^2x}{1+Cosx}$ = Cosx

$\frac{Sinx\frac{Cosx}{Sinx}+Cos^2x}{1+Cosx} \rightarrow Sin\frac{Cos}{Sin}$

$\frac{Cos+Cos^2x}{1+Cosx}$ And then $\frac{Cosx(1+Cosx)}{1+Cosx}$

Cosx = Cosx