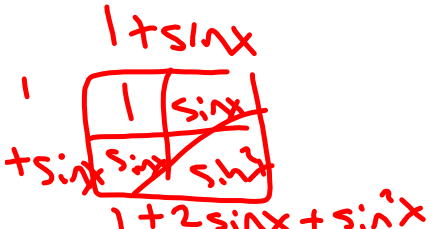


Warm-up

April 20, 2017

Simplify.

$$\frac{1+\sin x}{\cos x}+\frac{\cos x}{1+\sin x}$$

Add Fractions

$$\frac{(1+\sin x)(1+\sin x)+\cos x\cdot\cos x}{\cos x(1+\sin x)}$$

$$\frac{1+2\sin x+\sin^2 x+\cos^2 x}{\cos x(1+\sin x)}$$

Pyth. ID.

$$\frac{2+2\sin x}{\cos x(1+\sin x)}$$

GCF

$$\frac{2(1+\sin x)}{\cos x(1+\sin x)}$$

Simplify

Happy

Spring

Rewrite

$$\frac{2}{\cos x}=2\left(\frac{1}{\cos x}\right)$$

$$2\sec x$$

⑤ $3\sin^2+4\cos^2x = 3+\cos^2x$

$3(1-\cos^2x)+4\cos^2x$ ($\cos^2x$)

$3-3\cos^2x+4\cos^2x$

$3+\cos^2x$

$3\sin^2x+3\cos^2x+\cos^2x$

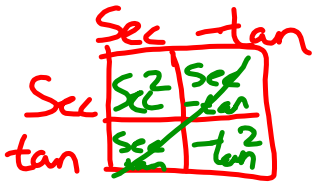
$3(\sin^2x+\cos^2x)+\cos^2x$ ($=1$)

$3(1)+\cos^2x$

$3+\cos^2x$

⑥ $(\sec x + \tan x)(\sec x - \tan x) = 1$

$\sec^2 - \tan^2$



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

$1 = \sec^2 - \tan^2$

$1 = 1$ ✓

⑧ $\frac{1}{1} - \frac{\cos^2 x}{1+\sin x} = \sin x$ (1 = (sin x))

$\frac{1+\sin x - \cos^2 x}{1+\sin x}$

$\frac{\cos^2 + \sin^2 + \sin x - \cos^2 x}{1+\sin x}$

$\frac{\sin^2 + \sin x}{1+\sin x}$

$\frac{\sin(\sin + 1)}{1+\sin}$

$\sin = \sin$

9) $\dfrac{1+\sin\theta}{1-\sin\theta} = \dfrac{\csc\theta+1}{\csc\theta-1}$

$$\frac{\frac{1}{\sin\theta}+\frac{\cos\theta}{1}+\frac{\sin\theta}{1}}{\frac{1}{\sin}-\frac{\cos\theta}{1}+\frac{\sin\theta}{1}}$$

-0

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

$$+1 \qquad +1$$

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

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

$$-1 \qquad -1$$

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

$\sin u = \frac{-4}{5}$, $\pi < u < \frac{3\pi}{2}$, Find $\cos 2u$.

$\cos 2u = 1 - 2\sin^2 u$

$1 - 2\left(\frac{-4}{5}\right)^2$

$1 - 2\left(\frac{16}{25}\right)$

$1 - \frac{32}{25} = \frac{-7}{25}$

(1) $\dfrac{(\sec x - \tan x)^2 + 1}{\csc x(\sec x - \tan x)} = 2\tan x$

$\dfrac{\sec^2 x - 2\tan x \sec x + \tan^2 x + 1}{\csc x(\sec x - \tan x)}$

multiply

	$\sec - \tan$
$\sec$	$\sec^2 - \tan x \sec x$
$-\tan$	$-\tan x \sec x + \tan^2$

$\dfrac{2\sec^2 x - 2\tan x \sec x + \sec^2 x - \tan^2}{\csc x(\sec x - \tan x)}$ Pyth. ID.

$\dfrac{2\sec x(\sec x - \tan x)}{\csc x(\sec x - \tan x)}$ GCF

Simplify

$\dfrac{2\left(\frac{1}{\cos x}\right)\cdot\frac{\sin x}{1}}{\left(\frac{1}{\sin x}\right)} = \dfrac{2(\sin x)}{\cos x}$ Rewrite

$2\tan x = 2\tan x$ ✓

$ax^2 + bx + c = 0$

④ $2\sin^2 x + 3\sin x + 1 = 0$

$(2\sin x + 1)(\sin x + 1) = 0$

$2\sin x + 1 = 0$

$-1 \quad -1$

$\frac{2\sin x}{2} = \frac{-1}{2}$

$(\sin x) = (-\frac{1}{2})$

$\sin^{-1}$ $\sin^{-1}$

$\sin x + 1 = 0$

$-1 \quad -1$

$(\sin x) = (-1)$

$\sin^{-1}$ $\sin^{-1}$

$x = 330°, 210°$ $x = 270°$

2 trig functions

3 terms

AC

2

1 2

Divisible by 3

$(x+\frac{1}{2})(x+\frac{2}{2})$

$(2x+1)(x+1)$

8 $\sec x \csc x = 2\csc x$ 2 trig

$-2\csc x \qquad -2\csc x$

$\sec x \csc x - 2\csc x = 0$

$\csc x$ $\csc x$

$\csc x(\sec x - 2) = 0$

$\csc x = 0$

$\sin x = \frac{1}{0}$

no solution

$\sec x - 2 = 0$

$+2 \quad +2$

$\sec x = 2$

$(\cos x) = \left(\frac{1}{2}\right)$

$\cos \quad \cos^{-1}$

$x = 60, 300$

L2

(9) $\dfrac{1+\sin x}{1-\sin x} = \dfrac{\csc x + 1}{\csc x - 1}$

multiply by conjugate

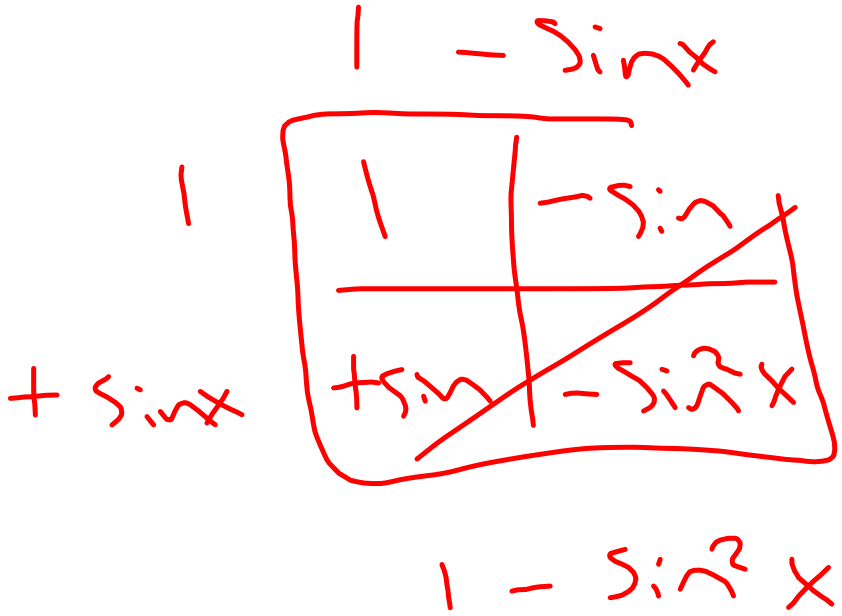
$\dfrac{(1+\sin x)(1+\sin x)}{(1-\sin x)(1+\sin x)}$

$\dfrac{1+2\sin x+\sin^2 x}{1-\sin^2 x}$

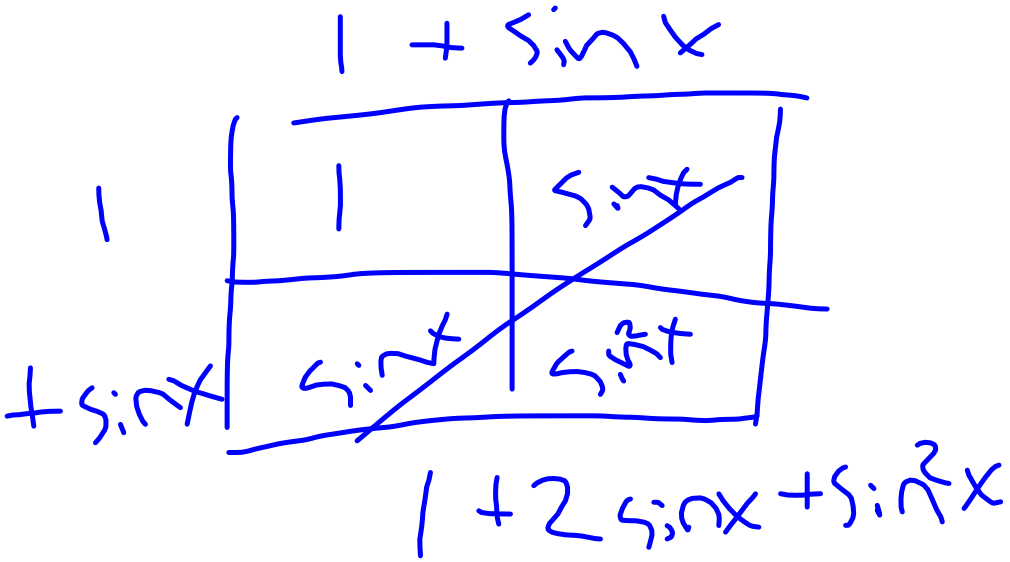
Pyth. ID

$\cos^2 x + \sin^2 x$

$\dfrac{1+2\sin x+\sin^2 x}{\cos^2 x}$



$1 - \sin^2 x$



$1 + 2\sin x + \sin^2 x$

L2

(9) $\dfrac{1+\sin x}{1-\sin x} = \dfrac{\csc x+1}{\csc x-1}$

Rewrite

$$\frac{\left(\frac{1}{\sin x}\right)+\frac{1}{1}\cdot\sin}{\left(\frac{1}{\sin x}\right)-\frac{1}{1}\cdot\sin}$$

Add fractions

$$\frac{\frac{1+\sin x}{\sin x}\cdot\frac{\sin x}{1-\sin x}}{\left(\frac{1-\sin x}{\sin x}\right)}$$

Divide fractions

$$\frac{1+\sin x}{1-\sin x}$$