Warm Up

Prove the following identity:

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

$\sin x(1+\cos x) - \sin x\cos x(1-\cos x)$

FOIL → $(1-\cos x)(1+\cos x)$

$\dfrac{\sin x + \sin x\cos x - \sin x\cos x + \sin x\cos^3 x}{1-\cos^2 x}$

Factor → $\dfrac{\sin x + \sin x\cos^2 x}{\sin^2 x}$

$\dfrac{\sin x\left(1+\cos^2 x\right)}{\sin^2 x}$

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

$\perp \sin x \quad (1+\cos^2 x)$

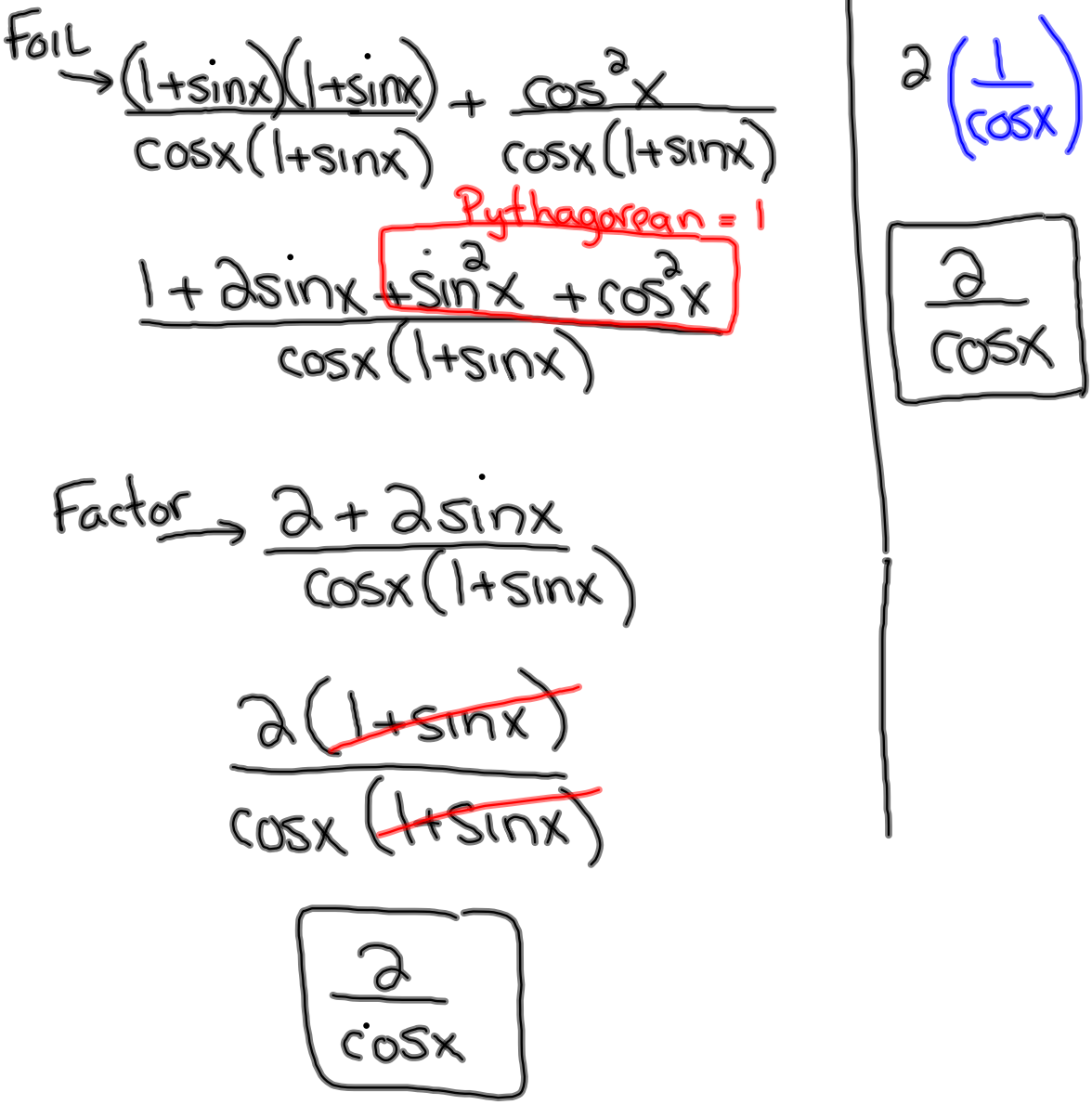
$\dfrac{1+\cos^2 x}{\sin x}$

Questions from Homework

Bonus

Prove the following identity:

$$\frac{1+\sin x}{\cos x}+\frac{\cos x}{1+\sin x}=2\sec x$$



Quiz & Homework