Warm Up 2/13

1) On your index card write down all of the pythagorean identities. Manipulate them so 3 equations = 1 → each trig f(x) has its own identity.

2) transform

a) $\sec x - \cos x \rightarrow \sin x \tan x$

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

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

$\frac{\sin^2 x}{\cos x}$

$\sin x\left(\frac{\sin x}{\cos x}\right)$

$\sin x \tan x \rightarrow \sin x \tan x$ ✓ "

b) $\sin^2 x \sec x \csc x \rightarrow \tan x$

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

$\frac{\sin^2 x}{\cos x \sin x}$

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

$\tan x \rightarrow \tan x$ ✓ "

5.1 day 3 ex 6 + 7

Goal: Continue to improve our transformation skills.

ex) $\frac{\sec x}{1-\sec x}\left(\frac{1+\sec x}{1+\sec x}\right) - \frac{\sec x}{1+\sec x}\left(\frac{1-\sec x}{1-\sec x}\right) \rightarrow -2\csc^2 x$

$$\frac{\sec x(1+\sec x) - \sec x(1-\sec x)}{1-\sec^2 x}$$

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

$$\frac{2\sec^2 x}{-\tan^2 x}$$

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

$$-2\left(\frac{1}{\sin^2 x}\right)$$

$$-2\csc^2 x \rightarrow -2\csc^2 x \quad \checkmark$$

y+) $\frac{\sin x}{1+\cos x}\left(\frac{1-\cos x}{1-\cos x}\right) \rightarrow \csc x - \cot x$

$$\frac{\sin x(1-\cos x)}{1-\cos^2 x} \qquad \text{or} \qquad \frac{\sin x - \sin x\cos x}{1-\cos^2 x}$$

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

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

$$\frac{1}{\sin x} - \frac{\cos x}{\sin x} \qquad \frac{1}{\sin x} - \frac{\cos x}{\sin x}$$

$$\csc x - \cot x \rightarrow \csc x - \cot x \quad \checkmark$$