

Warm up 2/24

1) Transform

1) $\sin \theta (\tan \theta + \cot \theta) \rightarrow \sec \theta$

$\sin \theta \left(\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta} \right)$
 $\frac{\sin^2 \theta}{\cos \theta} + \frac{\cos^2 \theta}{\sin \theta}$
 $\frac{\sin^2 \theta + \cos^2 \theta}{\cos \theta \sin \theta}$

$\sec \theta \rightarrow \sec \theta$

2) If $\csc x = 3$ & $\cos x < 0$ find $\cos x$

$\sin x = \frac{1}{3}$ $\left(\frac{1}{3}\right)^2 + \cos^2 x = 1$

$\cos^2 x = \frac{8}{9}$
 $\cos x = \pm \sqrt{\frac{8}{9}}$
 $\cos x = -\frac{2\sqrt{2}}{3}$

5.2 day 1 ex 1-3

Goal: Be able to verify trig identities

- hints:
- ① work on more complex side
 - ② only can work on one side of equation
 - ③ you can't cross the = sign (no dividing/multiplying over)
 - ④ try your best → smile

ex) $\sec^2 \theta \cot^2 \theta - 1 = \cot^2 \theta$

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

$$\frac{1}{\sin^2 \theta} - 1$$

$$\csc^2 \theta - 1$$

$$\cot^2 \theta = \cot^2 \theta \quad \checkmark$$

y⁺

$$\cos x \sec^2 x \tan x - \cos x \tan^3 x = \sin x$$

$$\cos x \left(\frac{1}{\cos^2 x}\right) \left(\frac{\sin x}{\cos x}\right) - \cos x \left(\frac{\sin^3 x}{\cos^3 x}\right)$$

$$\frac{\sin x}{\cos^2 x} - \frac{\sin^3 x}{\cos^2 x}$$

$$\frac{\sin x - \sin^3 x}{\cos^2 x}$$

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

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

$$\sin x = \sin x \quad \checkmark$$

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