

Bellwork Alg 2B Friday, May 18, 2018

Verify each identity.

1. $\sec x - \frac{1}{\sec x} = \tan x \sin x$

2. $\sec x \sin x = \sin^2 x (\tan x + \cot x)$

3. $\cos^2 x - \sin^2 x = 1 - 2\sin^2 x$

4. $\tan^2 x + \tan x \sec x + 1 = \frac{1 + \sin x}{\cos^2 x}$

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$$(1) \sec - \frac{1}{\sec} = \tan \cdot \sin$$

$$\frac{1}{\cos} - \frac{1}{\frac{1}{\cos}} = \frac{\sin}{\cos} \cdot \sin$$

$$\frac{1}{\cos} - \cos = \frac{\sin^2}{\cos}$$

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

$$\frac{1}{\cos x} - \cos x = \frac{1}{\cos x} - \cos x$$

$$(2) \sec \cdot \sin = \sin^2 (\tan + \cot)$$

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

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

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

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

$$\frac{\sin}{\cos} = \frac{\sin}{\cos}$$

(3)

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

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$$1 - \sin^2 - \sin^2$$

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

(4)

$$\tan^2 + \tan \cdot \sec + 1 = \frac{1 + \sin}{\cos^2}$$

$$\sec^2 + \tan \sec$$

$$\frac{1}{\cos^2} + \frac{\sin}{\cos} \cdot \frac{1}{\cos}$$

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

$$\frac{1 + \sin}{\cos^2} = \frac{1 + \sin}{\cos^2}$$