PRE-CALCULUS · CLASSWORK

Verify an Identity by Rewriting in Sine and Cosine

SCORE / 25

01 Part A · Practice

Work on ONE side (usually the more complicated one): rewrite every function in sines and cosines, then simplify until it matches the other side.

EXAMPLE

Verify $\sec\theta - \cos\theta = \sin\theta\tan\theta$.

1. $= \dfrac{1}{\cos\theta} - \cos\theta = \dfrac{1-\cos^2\theta}{\cos\theta}$
2. $= \dfrac{\sin^2\theta}{\cos\theta} = \sin\theta \cdot \dfrac{\sin\theta}{\cos\theta}$
3. $= \sin\theta\tan\theta$ ✓

1 ●○○ Simplify $\csc x - \sin x$ in terms of $\cot x$ and $\cos x$ only.

2 ●○○ Verify $\dfrac{\sin\alpha}{\csc\alpha} + \dfrac{\cos\alpha}{\sec\alpha} = 1$.

Step 1: $= \sin^2\alpha + \cos^2\alpha$

Write Step 2. Move: Pythagorean identity.

3 ●○○ Verify $\tan t \cos t \csc t = 1$.

Step 1: $= \dfrac{\sin t}{\cos t} \cdot \cos t \cdot \dfrac{1}{\sin t}$

What justifies Step 1?

4 ●○○ Verify $\csc x - \sin x = \cot x \cos x$.

Step 3: $= \dfrac{\cos^2 x}{\sin x}$

Write Step 4. Move: quotient identity.

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Preview - the full worksheet and its answer key are at primeworksheet.com