Review Day

Verify that: $(\csc x - \cot x)^2 = \frac{1-\cos x}{1+\cos x}$

$(\csc x - \cot x)(\csc x - \cot x)$

$\csc^2 x - \csc x \cot x - \csc x \cot x + \cot^2 x$

$\csc^2 x - 2\csc x \cot x + \cot^2 x$

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

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

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

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

$\frac{(x-1)(x-1)}{(1-x)(1+x)} = \frac{-x+1}{x+1}$

① $\frac{\sec\theta}{\cos\theta} - \frac{\tan\theta}{\cot\theta} = 1$

$\frac{1/\cos\theta}{\cos\theta \cdot \cos\theta} - \frac{\frac{\sin\theta}{\cos\theta}}{\frac{\cos\theta}{\sin\theta}}$

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

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

$\frac{\cos^2\theta}{\cos^2\theta}$

$1 = 1$

- Q.F.
- Ident. Notes

② $\frac{(\cos^2\theta)1}{(\cos^2\theta)\sin^2\theta} + \frac{1}{\cos^2\theta(\sin^2\theta)} = (\sec^2\theta)(\csc^2\theta)$

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

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

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

$\sec^2\theta \cdot \csc^2\theta$

$\frac{1}{4.5} = \frac{1}{4} \cdot \frac{1}{5}$