

Mth 113

Weds. 2-6-13

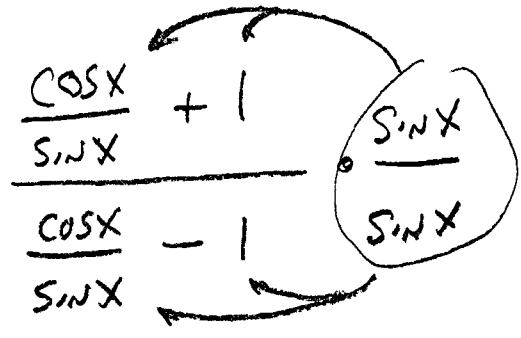
Class Notes

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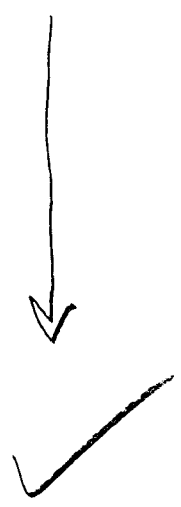
$$\frac{\cot x + 1}{\cot x - 1}$$

=

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



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



$$(57) \quad \frac{1}{1-\sin x} + \frac{1}{1+\sin x} = 2\sec^2 x$$

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

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

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

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

$$\frac{2}{\frac{1}{\sec^2 x}}$$

$$= \boxed{2\sec^2 x}$$



$$(59) \quad \sin^4 X - \cos^4 X = 1 - 2\cos^2 X$$

$$(\sin^2 X - \cos^2 X)(\sin^2 X + \cos^2 X)$$

$$1 - [\cos^2 X + \cos^2 X]$$

$$\boxed{(\sin^2 X - \cos^2 X)} \quad (1)$$

$$1 - \cos^2 X - \cos^2 X$$

$$(\sin X - \cos X)(\sin X + \cos X)$$

$$\boxed{\sin^2 X - \cos^2 X}$$



$$(63) \quad \frac{\tan y - \cot y}{\tan y + \cot y} = \frac{\tan^2 y - 1}{\sec^2 y}$$

$$\frac{\frac{\sin y}{\cos y} - \frac{\cos y}{\sin y}}{\frac{\sin y}{\cos y} + \frac{\cos y}{\sin y}}$$

$$\frac{\frac{\sin^2 y}{\cos y} - \cos y}{\frac{\sin^2 y}{\cos y} + \cos y}$$

$$\frac{\sin^2 y - \cos^2 y}{\cos y}$$

$$\frac{\sin^2 y - \cos^2 y}{\sin^2 y + \cos^2 y}$$

$$\frac{\sin^2 y - \cos^2 y}{\sin^2 y + \cos^2 y}$$

$$\frac{\sin^2 y - \cos^2 y}{\sin^2 y + \cos^2 y}$$

$$\sin^2 y - \cos^2 y$$

$$(\sin y - \cos y)(\sin y + \cos y)$$

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

$$\frac{\tan^2 y - 1}{\tan^2 y + 1}$$

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

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

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

$$\frac{\sin^2 y - \cos^2 y}{\sin^2 y + \cos^2 y}$$

$$\frac{\sin^2 y - \cos^2 y}{\sin^2 y + \cos^2 y}$$



$$\begin{aligned} \textcircled{69} \quad & 2\cos^2 y - 1 = \boxed{\cos^2 y - \sin^2 y} \\ & (\cos^2 y + \cos^2 y) - 1 \\ & \cos^2 y + (\cos^2 y - 1) \\ & \boxed{\cos^2 y - \sin^2 y} \end{aligned}$$