

#34

$$\frac{\tan \theta + 1}{\tan \theta - 1} = \frac{1 + \cot \theta}{1 - \cot \theta}$$

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

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

$$= \frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta}$$

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

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

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

Reverse

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

$$1 + \left(\frac{\cos \theta}{\sin \theta}\right)$$

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

$$\frac{1 + \cot \theta}{1 - \cot \theta} = \frac{1 + \cot \theta}{1 - \cot \theta}$$



$$35. \sec x + \tan x = \frac{1}{\sec x - \tan x}$$

$$\left(\frac{1}{\cos x}\right) + \left(\frac{\sin x}{\cos x}\right)$$

$$\frac{1 + \sin x}{\cos x}$$

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

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

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

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

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

$$\frac{1 + \sin x}{\cos x}$$

Reverse

$$\frac{1}{\cos x} + \frac{\sin x}{\cos x}$$

$$\sec x + \tan x \checkmark$$

#36. Not an identity.

$$\text{at } x=0, \sec^2 \theta - 2\sec \theta \tan \theta + \tan^2 \theta = 1$$

$$\text{and } \frac{1 - \cos \theta}{1 + \cos \theta} = 0$$

#37. not an identity

$$\frac{\cot^2 \theta - 1}{1 + \cot^2 \theta} \text{ is undefined}$$

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