16. $\frac{\sec\theta+1}{\sec\theta-1}+\frac{\cos\theta+1}{\cos\theta-1}=0$

$\Leftrightarrow$

$$\frac{(\sec\theta+1)(\cos\theta-1)+(\cos\theta+1)(\sec\theta-1)}{(\sec\theta-1)(\cos\theta-1)}$$

$$\frac{1-\sec\theta\cos\theta+\cos\theta-1+\cos\theta\sec\theta-\cos\theta+\sec\theta-1}{(\sec\theta-1)(\cos\theta-1)}$$

$$\frac{1-1+1-1}{(\sec\theta-1)(\cos\theta-1)}$$

$$\frac{0}{(\sec\theta-1)(\cos\theta-1)}$$

$=0$ $(\because \sec\theta \neq 1)$

18. $\dfrac{\csc\theta+\cot\theta}{\csc\theta-\cot\theta} = \dfrac{1+2\cos\theta+\cos^2\theta}{\sin^2\theta}$ $\quad 1+2m+m^2 = (1+m)^2$

LS

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

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

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

$$\frac{1+\cos\theta}{1-\cos\theta}$$

RS

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

$$\frac{(1+\cos\theta)^{\cancel{2}}}{(1-\cos\theta)\cancel{(1+\cos\theta)}}$$

LS = RS

Homework...

Worksheet - Trig Identities #2.doc

Prove the following identity:

$$\frac{1+\sin x}{\cos x}+\frac{\cos x}{1+\sin x}=2\sec x$$

Attachments

Worksheet - Trig Identities #2.doc