64. $\left(\frac{\tan x}{\tan x}\right)\tan x - \frac{\sec^2 x}{\tan x}$

$$\frac{\tan^2 x - \sec^2 x}{\tan x}$$

$1 + \tan^2 x = \sec^2 x$

$-\sec^2 x \quad -\sec^2 x$

$1 + \tan^2 x - \sec^2 x = 0$

$-1 \qquad\qquad -1$

$\tan^2 x - \sec^2 x = -1$

$$\frac{-1}{\tan x}$$

$-\cot x$

#63

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

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

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

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

#59 $(2\csc x + 2)(2\csc x - 2)$

$(4\csc^2 x - 4)$

$4(\csc^2 x - 1)$

$4\cot^2 x$

(conjugates multiplied gives diff. of squares)

$1 + \cot^2 x = \csc^2 x$

$-1 \qquad -1$

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