Chapter 7

I can verify Identities with multiplying

REMEMBER...

* Work with the more "complicated" side
* Use the other side to help you decide what to substitute in the "complicated" side
* Use Reciprocal, Quotient, Pythagorean Identities
* If stuck, change everything to sines & cosines

1.) $(1-\sin\theta)(1+\sin\theta)=\cos^2\theta$

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

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

$\cos^2\theta=\cos^2\theta$ ✓

2.) $\csc x(\cos x+\sin x)=\cot x+1$

$\csc x\cos x+\csc x\sin x=\cot x+1$

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

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

$\cot x+1=\cot x+1$ ✓

3.) $\sin^2 x\left(\sec^2 x+\csc^2 x\right)=\sec^2 x$

$\sin^2 x\sec^2 x+\sin^2 x\csc^2 x=\sec^2 x$

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

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

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

$\sec^2 x=\sec^2 x$ ✓

$x^2=x\cdot x \qquad 5^2=5\cdot 5$

4.) $(\sin x+\cos x)^2=1+2\sin x\cos x$

$(\sin x+\cos x)(\sin x+\cos x)=1+2\sin x\cos x$

$\sin^2 x+\sin x\cos x+\cos x\sin x+\cos^2 x$

$\sin^2 x+2\sin x\cos x+\cos^2 x$

$1+2\sin x\cos x=1+2\sin x\cos x$ ✓