PROVING TRIGONOMETRIC IDENTITIES
WORKSHEET FOR INSTRUCTORS

Prove the following Identities

1) $\frac{(1-cosu)(1+cosu)}{cos^2u} = tan^2u$
2) $\frac{cos^2x-1}{cosx} = -tanxsinx$
3) $sin^2x - \cos^2x = 1 - 2\cos^2x$
4) $\frac{1+tan^2x}{sin^2x+cos^2x} = sec^2x$
5) $(sec^2\theta - 1)(csc^2\theta - 1) = 1$
6) $cos^2A + \frac{1}{1+cot^2A} = 1$
7) $(cscA - sinA)(secA - cosA)(tanA + cotA) = 1$
8) $\frac{1}{1+sinx} + \frac{1}{1-sinx} = 2sec^2A$
9) $\sqrt{\frac{1+sin\theta}{1-sin\theta}} = \sec\theta + \tan\theta$
10) $\sqrt{\frac{1-cos\theta}{1+cos\theta}} = \csc\theta - \cot\theta$
11) $\tan^2\theta - sin^2\theta = tan^2\theta - sin^2\theta$
12) $\frac{sinAcosB+cosAsinB}{cosAcosB-sinAsinB} = \frac{tanA+tanB}{1-tanAtanB}$
13) $sin^2x\cos^3x = (sin^2x - sin^4x)cosx$
14) $\sqrt{\frac{sec\theta-1}{sec\theta+1}} + \sqrt{\frac{sec\theta+1}{sec\theta-1}} = 2\csc\theta$
15) $(secA - tanA)^2 = \frac{1-sinA}{1+sinA}$