

**[09-04-14-T11]***proofs*

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**■ Prove the following identities (*hint: addition thms helpful*)**

$$[1] \quad \sin(x + \pi) - \sin(x - \pi) = 0$$

$$[2] \quad \cos(\alpha + \beta) \cos(\alpha - \beta) = (\cos \alpha \cos \beta)^2 - (\sin \alpha \sin \beta)^2$$

$$[3] \quad \sec(x + y) = \frac{\sec x \sec y}{1 - \tan x \tan y}$$

$$[4] \quad \cos 2x = 2 \cos^2 x - 1$$