

$$I34. \tan 2u = \tan(u+u) = \frac{\tan u + \tan u}{1 - \tan u \cdot \tan u} = \frac{2 \tan u}{1 - \tan^2 u}$$

Half Angle Identities

$$I35 \sin^2 u = \frac{1 - \cos 2u}{2}$$

$$I36 \cos^2 u = \frac{1 + \cos 2u}{2}$$

$$I37 \tan^2 u = \frac{1 - \cos 2u}{1 + \cos 2u}$$