

4.10 Double Angle Formulas

$$410. \quad \sin 2\alpha = 2\sin \alpha \cdot \cos \alpha$$

$$411. \quad \cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha = 1 - 2\sin^2 \alpha = 2\cos^2 \alpha - 1$$

$$412. \quad \tan 2\alpha = \frac{2\tan \alpha}{1 - \tan^2 \alpha} = \frac{2}{\cot \alpha - \tan \alpha}$$

$$413. \quad \cot 2\alpha = \frac{\cot^2 \alpha - 1}{2\cot \alpha} = \frac{\cot \alpha - \tan \alpha}{2}$$