Double angle formula

A *double angle formula* is a trigonometric identity which expresses a trigonometric function of 2θ in terms of trigonometric functions of θ. They are special cases of the compound angle formulae. The main formulae are:

$$\begin{aligned}\cos 2\theta &= \cos^2\theta - \sin^2\theta \\ &= 2\cos^2\theta - 1 \\ &= 1 - 2\sin^2\theta \\ \sin 2\theta &= 2\sin\theta\cos\theta \\ \tan 2\theta &= \frac{2\tan\theta}{1-\tan^2\theta}\end{aligned}$$

There are corresponding formulae for the hyperbolic functions, which can be obtained by applying Osborn's rule to these formulae.