Some trigonometric identities

$\sin^2 x + \cos^2 2 = 1$

$1 + \tan^2 x = \sec^2 x$

Double angle formulas

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

$\cos^2 x = \frac{1 + \cos 2x}{2}$

$\sin 2x = 2 \sin x \cos x$

$\cos 2x = \cos^2 x - \sin^2 x$

Sum formulas

$\sin a \cos b = \frac{1}{2}[\sin(a - b) + \sin(a + b)]$

$\sin a \sin b = \frac{1}{2}[\cos(a - b) - \cos(a + b)]$

$\cos a \cos b = \frac{1}{2}[\cos(a - b) + \cos(a + b)]$