

# Compound angle formula

A *compound angle formula* or *addition formula* is a trigonometric identity which expresses a trigonometric function of  $(A + B)$  or  $(A - B)$  in terms of trigonometric functions of  $A$  and  $B$ .

The three basic formulae are:

$$\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$$

$$\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$\tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

There are corresponding results for hyperbolic functions which can be obtained by applying [Osborn's Rule](#):

$$\cosh(A \pm B) = \cosh A \cosh B \pm \sinh A \sinh B$$

$$\sinh(A \pm B) = \sinh A \cosh B \pm \cosh A \sinh B$$

$$\tanh(A \pm B) = \frac{\tanh A \pm \tanh B}{1 \pm \tanh A \tanh B}$$