

Angle Sum & Difference Identities

Definition (Sum & Difference Identities).

$$\begin{aligned}\sin(A \pm B) &= \sin A \cos B \pm \cos A \sin B \\ \cos(A \pm B) &= \cos A \cos B \mp \sin A \sin B \\ \tan(A \pm B) &= \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}\end{aligned}$$

Remark. You do not need to memorize the half angle identities. These identities will be listed on a provided formula sheet for the exam. You are responsible for memorizing the reciprocal, quotient, and Pythagorean identities.

Example. Evaluate $\cos(75^\circ)$.

Example. Evaluate $\sin\left(\frac{11\pi}{12}\right)$.

Example. Given $\sin A = \frac{3}{5}$, where A is in Quadrant I, and $\cos B = -\frac{5}{13}$, where B is in Quadrant II, find $\sin(A + B)$, $\cos(A + B)$, and determine the quadrant of $A + B$.