

MHF 4U
COMPOUND ANGLE FORMULAS

THE FORMULAS:

1. $\sin(A + B) = \sin A \cos B + \cos A \sin B$

2. $\sin(A - B) = \sin A \cos B - \cos A \sin B$

3. $\cos(A + B) = \cos A \cos B - \sin A \sin B$

4. $\cos(A - B) = \cos A \cos B + \sin A \sin B$

5. $\tan(A + B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$

6. $\tan(A - B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$

EXERCISE:

1. Determine the exact value of each.

A) $\tan 75^\circ$ B) $\sin \frac{\pi}{12}$ C) $\cos \frac{7\pi}{12}$ D) $\tan -\frac{37\pi}{12}$

2. Use a compound angle formula to express as a single trigonometric function.

A) $\sin x \cos y + \cos x \sin y$ B) $\cos A \cos 4A - \sin A \sin 4A$

C) $2\sin M \cos M$ D) $\cos^2 H - \sin^2 H$

E) $\sin 2x \cos 3x + \cos 2x \sin 3x$ F) $\frac{\tan 5H - \tan 2H}{1 + \tan 5H \tan 2H}$

3. Given $\sin A = \frac{3}{5}$, $\frac{\pi}{2} \leq A \leq \pi$, and $\cos B = \frac{12}{13}$, $B \in \left[\frac{3\pi}{2}, 2\pi\right]$, then determine...

A) $\sin(A + B)$ B) $\cos(A - B)$ C) $\tan(A - B)$