Section 5.4 Sum and Difference Identities for Sine and Tangent

$$\sin(A+B) = \sin A \cos B + \cos A \sin B \qquad \tan(A+B) = \frac{\tan A + \tan B}{1 - \tan A \ \tan B}$$

$$\sin(A-B) = \sin A \cos B - \cos A \sin B \qquad \tan(A-B) = \frac{\tan A - \tan B}{1 + \tan A \ \tan B}$$

Example 1: Find the *exact* value of each expression.

a) $\sin 105°$

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b) $\tan 15°$

Example 2: Use the identities to write each expression as a single function of x or θ.

a) $\tan\left(\frac{\pi}{4}+x\right)$

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b) $\sin(270°-\theta)$

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c) $\cos(\theta-30°)$