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- $\cos(A B) = \cos A \cos B + \sin A \sin B$
- $\cos(A+B) = \cos A \cos B \sin A \sin B$
- $\sin(A+B) = \sin A \cos B + \sin B \cos A$
- $\sin(A B) = \sin A \cos B \sin B \cos A$
- $\sin(30^\circ) = \frac{1}{2}$   $\cos(30^\circ) = \frac{\sqrt{3}}{2}$
- $\sin(45^\circ) = \frac{\sqrt{2}}{2}$   $\cos(45^\circ) = \frac{\sqrt{2}}{2}$
- $\sin(60^\circ) = \frac{\sqrt{3}}{2}$   $\cos(60^\circ) = \frac{1}{2}$

**Problem 1.** Note that  $15^{\circ} = 45^{\circ} - 30^{\circ}$ 

- (a) Find  $\sin(15^{\circ})$ .
- **(b)** Find  $\cos(15^{\circ})$ .

**Problem 2.** Suppose that  $\sin(A) = \frac{4}{5}$  and  $\sin(B) = \frac{3}{5}$ .

- (a) Find cos(A) and cos(B).
- **(b)** Find cos(A B) and cos(A + B).
- (c) Find sin(A + B) and sin(A B).

**Problem 3.** Suppose that  $cos(A) = \frac{4}{5}$  and  $cos(B) = \frac{1}{5}$ .

(a) Find sin(A) and sin(B).

(b) Find cos(A - B) and cos(A + B).

(c) Find  $\sin(A+B)$  and  $\sin(A-B)$ .

**Problem 4.** Suppose that  $sin(A) = \frac{5}{7}$  and  $sin(B) = \frac{2}{7}$ .

(a) Find cos(A) and cos(B).

**(b)** Find cos(A - B) and cos(A + B).

(c) Find sin(A+B) and sin(A-B).