

Section 5-2 Composite Argument Property for $\cos(A - B)$

This property helps to work backwards to express cosine as a linear combination of sine and cosine. Example: If you wanted to find $\cos 15^\circ$ exactly, you could do $\cos(45^\circ - 30^\circ)$

Important: Does the Distributive Property hold true for this property?

$$\begin{array}{rcl} \cos(45^\circ - 30^\circ) & = & \cos 45^\circ - \cos 30^\circ \quad ??? \\ \cos 15^\circ & & 0.707 - 0.866 \\ 0.966 & \neq & -0.159 \end{array}$$

Composite Argument Property for $\cos(A - B)$

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

Express each equation as a linear combination of cosine and sine.

1. $y = 20 \cos(\theta - 60)$

2. $y = 8 \cos(2\theta - 120)$

Solve the equation.

3. $2 \cos \theta + 5 \sin \theta = 4$ $\theta \in [0, 360^\circ]$

4. $7 \cos x - 4 \sin x = 6$ $x \in [0, 2\pi]$