

# Combining Sine and Cosine Functions

A combination of the form

$$A \sin(\omega t) + B \cos(\omega t)$$

looks like a single oscillation if you draw the graph. This is because this can always be written in the form

$$R \cos(\omega t - \phi)$$

for some value of  $R$  and  $\phi$ .

## Connecting to Second Order Equations

How do all of these quantities relate to the initial conditions given in a problem?