Problem 16

Show that $A \cos \omega_0 t + B \sin \omega_0 t$ can be written in the form $r \sin(\omega_0 t - \theta)$. Determine $r$ and $\theta$ in terms of $A$ and $B$. If $R \cos(\omega_0 t - \delta) = r \sin(\omega_0 t - \theta)$, determine the relationship among $R$, $r$, $\delta$, and $\theta$. 