K&F 1.13.3

$$x = Ae^{j\omega_1 t} + Ae^{j\omega_2 t}$$

Then by “pulling out” a complex exponential factor exp($j(\omega_1+\omega_2)t/2$), we get

$$= Ae^{j(\omega_1+\omega_2)t/2}\left\{e^{-j(\omega_2-\omega_1)t/2} + e^{j(\omega_2-\omega_1)t/2}\right\}$$

Note that the quantity in the curly braces can be re-written using Euler’s relationship as
2 cos($(\omega_2 - \omega_1)t/2$) .

With $\Delta\omega = \omega_2 - \omega_1$, we can also write $(\omega_1 + \omega_2)t/2 = (\omega_1 + \Delta\omega/2)\, t$, so

$$= 2Ae^{j(\omega_1+\Delta\omega/2)t}\{\cos(t\Delta\omega/2)\}$$