

Important Identities

$$1) e^{j\theta} = \cos(\theta) + j \sin(\theta)$$

$$2) e^{-j\theta} = \cos(\theta) - j \sin(\theta)$$

$$3) \sin(kt) \cos(t) = \frac{1}{2} [\sin(k+1)t + \sin(k-1)t]$$

$$4) \sin(t) \cos(kt) = \frac{1}{2} [\sin(k+1)t - \sin(k-1)t]$$

$$5) \sin(t) \sin(kt) = \frac{1}{2} [\cos(k-1)t - \cos(k+1)t]$$

$$6) \cos(t) \cos(kt) = \frac{1}{2} [\cos(k-1)t + \cos(k+1)t]$$