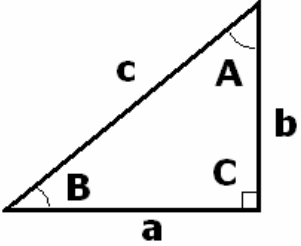


ECE 4501 - TRIGNOMETRIC IDENTITIES – S.Norr

1. $\sin A = \cos (A - 90^\circ)$; $\cos B = \sin (B + 90^\circ)$
2. $\sin (A + B) = \sin A \cos B + \cos A \sin B$
3. $\sin (A - B) = \sin A \cos B - \cos A \sin B$
4. $\cos (A + B) = \cos A \cos B - \sin A \sin B$
5. $\cos (A - B) = \cos A \cos B + \sin A \sin B$
6. $\cos A \cos B = \frac{1}{2} [\cos (A - B) + \cos (A + B)]$
7. $\sin A \sin B = \frac{1}{2} [\cos (A - B) - \cos (A + B)]$
8. $\sin A \cos B = \frac{1}{2} [\sin (A + B) + \sin (A - B)]$
9. $\cos A \sin B = \frac{1}{2} [\sin (A + B) - \sin (A - B)]$
10. $\sin^2 A = \frac{1}{2} (1 - \cos 2A)$
11. $\cos^2 A = \frac{1}{2} (1 + \cos 2A)$
12. $\sin A \cos A = \frac{1}{2} \sin 2A$
13. $A \cos \omega t + B \sin \omega t = C \cos (\omega t - \alpha)$ Where: $C = (A^2 + B^2)^{1/2}$
 $\alpha = \tan^{-1} B/A$
14. $\sec^2 A = 1 + \tan^2 A$

15. Law of Sines:	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$	
16. Law of Cosines:	$a^2 = b^2 + c^2 - 2 b c \cos A$	

17. Euler's Identities: $e^{\pm j\theta} = \cos \theta \pm j \sin \theta$

$$\cos \theta = \frac{e^{j\theta} + e^{-j\theta}}{2}$$

$$\sin \theta = \frac{e^{j\theta} - e^{-j\theta}}{2}$$