TRIG IDENTITIES

1. $\tan \theta = (\sin \theta) / (\cos \theta)$
2. $\cot \theta = (\cos \theta)/ (\sin \theta)$
3. $\sec \theta = 1 / (\cos \theta)$
4. $\csc \theta = 1 / (\sin \theta)$
5. $\sin^2 \theta + \cos^2 \theta = 1$
6. $1 + \tan^2 \theta = \sec^2 \theta$
7. $1 + \cot^2 \theta = \csc^2 \theta$
8. $\cos (- \theta) = \cos \theta$
9. $\sin (- \theta) = -\sin \theta$
10. $\cos (\pi - \theta) = -\cos \theta$
11. $\sin (\pi - \theta) = \sin \theta$
12. $\cos (\pi + \theta) = -\cos \theta$
13. $\sin (\pi + \theta) = -\sin \theta$
14. $\cos (\theta \pm 2\pi n) = \cos \theta$ for any integer *n*
15. $\sin (\theta \pm 2\pi n) = \sin \theta$ for any integer *n*
16. $\cos (\pi/2 + \theta) = -\sin \theta$
17. $\sin (\pi/2 + \theta) = \cos \theta$
18. $\cos (\pi/2 - \theta) = \sin \theta$
19. $\sin (\pi/2 - \theta) = \cos \theta$
20. $\cos (\theta_1 + \theta_2) = (\cos \theta_1)(\cos \theta_2) - (\sin \theta_1)(\sin \theta_2)$
21. $\cos (\theta_1 - \theta_2) = (\cos \theta_1)(\cos \theta_2) + (\sin \theta_1)(\sin \theta_2)$
22. $\sin (\theta_1 \pm \theta_2) = (\sin \theta_1)(\cos \theta_2) \pm (\cos \theta_1)(\sin \theta_2)$
23. $\tan (\theta_1 + \theta_2) = (\tan \theta_1 + \tan \theta_2) / [1 - (\tan \theta_1)(\tan \theta_2)]$
24. $\tan (\theta_1 - \theta_2) = (\tan \theta_1 - \tan \theta_2) / [1 + (\tan \theta_1)(\tan \theta_2)]$
25. $\sin (2\theta) = 2(\sin \theta)(\cos \theta)$
26. $\cos (2\theta) = \cos^2 \theta - \sin^2 \theta$
27. $\cos (2\theta) = 1 - 2(\sin^2 \theta)$
28. $\cos (2\theta) = 2(\cos^2 \theta) - 1$
29. $\tan (2\theta) = [2(\tan \theta)] / (1 - \tan^2 \theta)$
30. $\sin (\theta/2) = \pm[(1 - \cos \theta)/2]^{1/2}$
31. $\cos (\theta/2) = \pm[(1 + \cos \theta)/2]^{1/2}$
32. $\tan (\theta/2) = \pm[(1 - \cos \theta) / (1 + \cos \theta)]^{1/2}$
33. $\sin (\theta_1 + \theta_2) + \sin (\theta_1 - \theta_2) = 2(\sin \theta_1)(\cos \theta_2)$
34. $\sin (\theta_1 + \theta_2) - \sin (\theta_1 - \theta_2) = 2(\cos \theta_1)(\sin \theta_2)$
35. $\cos (\theta_1 + \theta_2) + \cos (\theta_1 - \theta_2) = 2(\cos \theta_1)(\cos \theta_2)$
36. $\cos (\theta_1 + \theta_2) - \cos (\theta_1 - \theta_2) = -2(\sin \theta_1)(\sin \theta_2)$
37. $\sin \theta_1 + \sin \theta_2 = 2[\sin ((\theta_1 + \theta_2)/2)][\cos ((\theta_1 - \theta_2)/2)]$
38. $\sin \theta_1 - \sin \theta_2 = 2[\cos ((\theta_1 + \theta_2)/2)][\sin ((\theta_1 - \theta_2)/2)]$
39. $\cos \theta_1 + \cos \theta_2 = 2[\cos ((\theta_1 + \theta_2)/2)][\cos (\theta_1 - \theta_2)/2]$
40. $\cos \theta_1 - \cos \theta_2 = -2[\sin ((\theta_1 + \theta_2)/2)][\sin (\theta_1 - \theta_2)/2]$