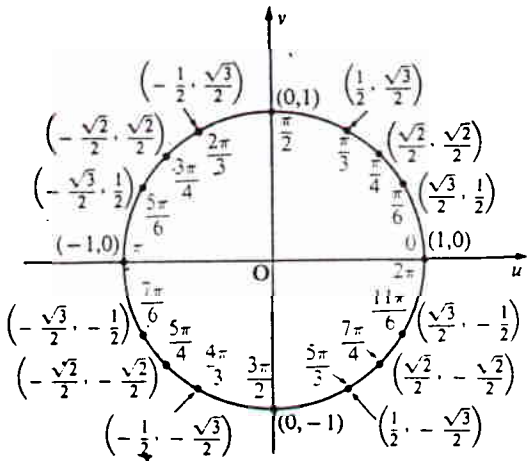

BASIC IDENTITIES

For each $x \in \mathfrak{R}$ for which both members are defined:

1. $\tan x = \dfrac{\sin x}{\cos x}$
2. $\cot x = \dfrac{\cos x}{\sin x}$
3. $\sec x = \dfrac{1}{\cos x}$
4. $\csc x = \dfrac{1}{\sin x}$
5. $\cot x = \dfrac{1}{\tan x}$
6. $\sin^2 x + \cos^2 x = 1$
7. $1 + \tan^2 x = \sec^2 x$
8. $1 + \cot^2 x = \csc^2 x$
9. $\cos (x_2 \pm x_1) = \cos x_2 \cos x_1 \mp \sin x_2 \sin x_1$
10. $\cos (-x) = \cos x$
11. $\cos\left(\dfrac{\pi}{2} - x\right) = \sin x$
12. $\cos 2x = \cos^2 x - \sin^2 x = 2\cos^2 x - 1 = 1 - 2\sin^2 x$
13. $\cos \dfrac{x}{2} = \pm\sqrt{\tfrac{1}{2}(1 + \cos x)}$
14. $\sin (x_2 \pm x_1) = \sin x_2 \cos x_1 \pm \cos x_2 \sin x_1$
15. $\sin (-x) = -\sin x$
16. $\sin\left(\dfrac{\pi}{2} - x\right) = \cos x$
17. $\sin 2x = 2 \sin x \cos x$
18. $\sin \dfrac{x}{2} = \pm\sqrt{\tfrac{1}{2}(1 - \cos x)}$
19. $\tan (x_2 \pm x_1) = \dfrac{\tan x_2 \pm \tan x_1}{1 \mp \tan x_2 \tan x_1}$
20. $\tan (-x) = -\tan x$
21. $\tan 2x = \dfrac{2 \tan x}{1 - \tan^2 x}$
22. $\tan \dfrac{x}{2} = \dfrac{\sin x}{1 + \cos x}$
23. $\cos (\pi \pm x) = -\cos x$
24. $\sin (\pi \pm x) = \mp \sin x$
25. $\tan (\pi \pm x) = \pm \tan x$
26. $\cos (x_2 + x_1) + \cos (x_2 - x_1) = 2 \cos x_2 \cos x_1$
27. $\cos (x_2 + x_1) - \cos (x_2 - x_1) = -2 \sin x_2 \sin x_1$
28. $\sin (x_2 + x_1) + \sin (x_2 - x_1) = 2 \sin x_2 \cos x_1$
29. $\sin (x_2 + x_1) - \sin (x_2 - x_1) = 2 \cos x_2 \sin x_1$
30. $\cos x_1 + \cos x_2 = 2 \cos \dfrac{x_1 + x_2}{2} \cos \dfrac{x_1 - x_2}{2}$
31. $\cos x_1 - \cos x_2 = -2 \sin \dfrac{x_1 + x_2}{2} \sin \dfrac{x_1 - x_2}{2}$
32. $\sin x_1 + \sin x_2 = 2 \sin \dfrac{x_1 + x_2}{2} \cos \dfrac{x_1 - x_2}{2}$
33. $\sin x_1 - \sin x_2 = 2 \cos \dfrac{x_1 + x_2}{2} \sin \dfrac{x_1 - x_2}{2}$