Name _____ Date _____

# 6.2 Exercises – Verifying Trigonometric Identities

Verify each identity.   EVENS   only!!

11. $\sin t \csc t = 1$

12. $\sec y \cos y = 1$

13. $\dfrac{\csc^2 x}{\cot x} = \csc x \sec x$

14. $\dfrac{\sin^2 t}{\tan^2 t} = \cos^2 t$

15. $\cos^2 \beta - \sin^2 \beta = 1 - 2\sin^2 \beta$

16. $\cos^2 \beta - \sin^2 \beta = 2\cos^2 \beta - 1$

17. $\tan^2 \theta + 6 = \sec^2 \theta + 5$

18. $2 - \csc^2 z = 1 - \cot^2 z$

19. $(1 + \sin x)(1 - \sin x) = \cos^2 x$

20. $\tan^2 y(\csc^2 y - 1) = 1$

33. $\sin^{1/2} x \cos x - \sin^{5/2} x \cos x = \cos^3 x \sqrt{\sin x}$

34. $\sec^6 x(\sec x \tan x) - \sec^4 x(\sec x \tan x) = \sec^5 x \tan^3 x$

35. $\cot\left(\dfrac{\pi}{2} - x\right)\csc x = \sec x$

36. $\dfrac{\sec[(\pi/2) - x]}{\tan[(\pi/2) - x]} = \sec x$

37. $\dfrac{\csc(-x)}{\sec(-x)} = -\cot x$

38. $(1 + \sin y)[1 + \sin(-y)] = \cos^2 y$

39. $\dfrac{\cos x - \cos y}{\sin x + \sin y} + \dfrac{\sin x - \sin y}{\cos x + \cos y} = 0$

40. $\dfrac{\tan x + \cot y}{\tan x \cot y} = \tan y + \cot x$

41. $\dfrac{\cos \theta}{1 - \sin \theta} = \sec \theta + \tan \theta$

42. $(\sec \theta - \tan \theta)(\csc \theta + 1) = \cot \theta$

43. $\sin^2\left(\dfrac{\pi}{2} - x\right) + \sin^2 x = 1$

44. $\sec^2 y - \cot^2\left(\dfrac{\pi}{2} - y\right) = 1$

45. $\sin x \csc\left(\dfrac{\pi}{2} - x\right) = \tan x$

46. $\sec^2\left(\dfrac{\pi}{2} - x\right) - 1 = \cot^2 x$