

Math 116

5.1 Trigonometric Identities Review Worksheet

Verify the following Identities.

$$1. \cos \theta \tan \theta = \sin \theta$$

$$2. \frac{\sin \sigma}{\tan \sigma} = \cos \sigma$$

$$3. \sin \beta \sec \beta \cot \beta = 1$$

$$4. \sec^2 \delta - \tan^2 \delta = 1$$

$$5. \sec x - \sec x \sin^2 x = \cos x$$

$$6. \frac{\sin^2 \theta}{1 - \cos \theta} = 1 + \cos \theta$$

$$7. \frac{1 + \tan^2 x}{\csc x \sec x} = \tan x$$

$$8. \csc^2 \alpha (1 - \sin^2 \alpha) = \cot^2 \alpha$$

$$9. (1 - \sin \lambda)(\sec \lambda + \tan \lambda) = \cos \lambda$$

$$10. \frac{1 - \cos^2 x}{\csc^2 x - 1} = \sin^4 x \sec^2 x$$

$$11. \sec^4 \phi - \tan^4 \phi = \sec^2 \phi + \tan^2 \phi$$

$$12. \frac{\sin x}{1 - \cos x} = \csc x + \cot x$$

$$13. (\sin x - \cos x)(\sin x + \cos x) = 1 - 2 \cos^2 x$$

$$14. \frac{\frac{1}{\sin \theta} + \csc \theta}{\frac{1}{\sin \theta} - \sin \theta} = \frac{2}{\cos^2 \theta}$$

$$15. \frac{\tan \varphi}{1 + \tan \varphi} - \frac{\cot \varphi}{1 + \tan \varphi} = 1 - \cot \varphi$$

$$16. \frac{\cos \omega + \cot \omega \sin \omega}{\cot \omega} = 2 \sin \omega$$