YayMath.org

Trigonometry – Verifying Trig Identities

The video covers the following exercises. Print this sheet and work with the group!

$\sin^2\theta+\cos^2\theta=1$

$\tan^2\theta+1=\sec^2\theta$

$1+\cot^2\theta=\csc^2\theta$

$\tan\theta=\dfrac{\sin\theta}{\cos\theta}$

$\cot\theta=\dfrac{\cos\theta}{\sin\theta}$

$\sin\theta=\dfrac{1}{\csc\theta}$ $\quad\tan\theta=\dfrac{1}{\cot\theta}$

$\cos\theta=\dfrac{1}{\sec\theta}$

Please verify:

$\dfrac{\cot\theta}{\tan\theta}=\cot^2\theta$

$\csc^2\theta\left(1-\cos^2\theta\right)=1$

$1-\sin^4\theta=2\cos^2\theta-\cos^4\theta$

Verification strategies:

1.)

2.)

3.)

4.)

$$\tan^2\theta\left(1-\sin^2\theta\right)=\sin^2\theta$$

$$\frac{\cot^2\theta}{1+\cot^2\theta}=1-\sin^2\theta$$

$$\tan\theta+\frac{\cos\theta}{1+\sin\theta}=\sec\theta$$

$$\sec\theta+\tan\theta=\frac{\cos\theta}{1-\sin\theta}$$