

Recall:

QI:

PI:

Today, include: Reciprocal Identities (RI):

co-secant: $csc\theta = \frac{1}{\sin\theta}$

secant: $sec\theta = \frac{1}{\cos\theta}$

co-tangent: $cot\theta = \frac{1}{\tan\theta}$

Example 1) Prove.

a) $1 - \sin^2\theta = \sin\theta\cos\theta\cot\theta$

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

c) $\tan\theta + \cot\theta = \frac{\sec\theta}{\sin\theta}$

U5D8 Worksheet:**Trigonometric Identities**

Prove each identity.

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

2. $csc\theta = \sec\theta \cot\theta$

3. $\cos\theta = \sin\theta \cot\theta$

4. $\sec\theta = csc\theta \tan\theta$

5. $1 + csc A = csc A (1 + \sin A)$

6. $\cot B \sin B \sec B = 1$

7. $\cos C (\sec C - 1) = 1 - \cos C$

8. $1 + \sin D = \sin D (1 + csc D)$

9. $1 - \sin^2\theta = \sin\theta \cos\theta \cot\theta$

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

11. $\frac{\cos\theta}{1 + \sin\theta} = \frac{1 - \sin\theta}{\cos\theta}$

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

13. $csc^2\theta \cos^2\theta = csc^2\theta - 1$

14. $\tan\theta + \cot\theta = \frac{\sec\theta}{\sin\theta}$

15. $\frac{\cot\theta}{csc\theta} = \cos\theta$