

Pre-Calculus
Verifying Identities Worksheet

Name _____

Directions: ^{Prove}~~Verify~~ each trigonometric identity. Complete all work on a separate piece of paper.

1) $\cos^3 \theta + \sin^2 \theta \cos \theta = \cos \theta$

3) $\sec \theta \sin \theta = \tan \theta$

5) $\frac{\sec^2 \theta - 1}{\tan \theta} = \tan \theta$

7) $\sec \theta \sin \theta \cot \theta = 1$

9) $\cos^2 \theta - \sin^2 \theta = 2 \cos^2 \theta - 1$

11) $\cot \theta \sin \theta = \cos \theta$

13) $\sin \theta (1 + \csc \theta) = \sin \theta + 1$

15) $(1 + \tan^2 \theta) \cos^2 \theta = 1$

17) $(\sec \theta + \tan \theta)(\sec \theta - \tan \theta) = 1$

19) $\frac{1 - 2 \csc \theta}{\cot \theta} = \tan \theta - 2 \sec \theta$

21) $\sin \theta + \cos \theta \cot \theta = \csc \theta$

23) $\frac{\cos \theta}{1 - \sin^2 \theta} = \sec \theta$

25) $\frac{\cot \theta}{1 + \cot^2 \theta} = \sin \theta \cos \theta$

27) $\frac{\sin \theta + \cos \theta}{\sin \theta \cos \theta} = \sec \theta + \csc \theta$

29) $\frac{(1 + \sin \theta)^2}{\cos^2 \theta} = \frac{1 + \sin \theta}{1 - \sin \theta}$

31) $\csc \theta \cos^2 \theta + \sin \theta = \csc \theta$

33) $\sin \theta \left(\frac{\cot \theta}{\sec \theta} + \csc \theta \right) = \cos^2 \theta + 1$

35) $\csc \theta - \sin \theta = \cot \theta \cos \theta$

2) $\csc^2 \theta - \cos^2 \theta \csc^2 \theta = 1$

4) $\frac{\csc \theta}{\sec \theta} = \cot \theta$

6) $\frac{\cot \theta}{\csc^2 \theta - 1} = \tan \theta$

8) $\cot \theta \csc \theta \tan^2 \theta = \sec \theta$

10) $\cos^2 \theta - \sin^2 \theta = 1 - 2 \sin^2 \theta$

12) $\frac{\tan \theta}{\sec \theta} = \sin \theta$

14) $(1 + \tan \theta)^2 = \sec^2 \theta + 2 \tan \theta$

16) $\cos \theta = \sec \theta - \sin \theta \tan \theta$

18) $\frac{\sec \theta}{\csc^2 \theta} = \sec \theta - \cos \theta$

20) $\frac{\sec^2 \theta - 1}{\tan \theta} = \tan \theta$

22) $\cos \theta (\csc \theta - \sec \theta) = \cot \theta - 1$

24) $\tan^2 \theta - \tan^2 \theta \sin^2 \theta = \sin^2 \theta$

26) $\frac{1 + \tan^2 \theta}{\cos^2 \theta} = \sec^4 \theta$

28) $\frac{\sec \theta + \tan \theta}{\cos \theta + \cot \theta} = \sin \theta \sec^2 \theta$

30) $\frac{1 + \sec \theta}{\tan \theta + \sin \theta} = \csc \theta$

32) $\frac{\csc^2 \theta}{\csc^2 \theta - 1} = \sec^2 \theta$

34) $\frac{2 \cos^2 \theta - \sin^2 \theta + 1}{\cos \theta} = 3 \cos \theta$

36) $\frac{1}{1 - \cos \theta} + \frac{1}{1 + \cos \theta} = 2 \csc^2 \theta$

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Mike Jess



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Table of Contents Hs Math Pre Cal Unit 12 Lesson 1 Series

1. Understanding the eBook Hs Math Pre Cal Unit 12 Lesson 1 Series
 - The Rise of Digital Reading Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Advantages of eBooks Over Traditional Books
2. Identifying Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Hs Math Pre Cal Unit 12 Lesson 1 Series
 - User-Friendly Interface
4. Exploring eBook Recommendations from Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Personalized Recommendations
 - Hs Math Pre Cal Unit 12 Lesson 1 Series User Reviews and Ratings

- Hs Math Pre Cal Unit 12 Lesson 1 Series and Bestseller Lists
- 5. Accessing Hs Math Pre Cal Unit 12 Lesson 1 Series Free and Paid eBooks
 - Hs Math Pre Cal Unit 12 Lesson 1 Series Public Domain eBooks
 - Hs Math Pre Cal Unit 12 Lesson 1 Series eBook Subscription Services
 - Hs Math Pre Cal Unit 12 Lesson 1 Series Budget-Friendly Options
- 6. Navigating Hs Math Pre Cal Unit 12 Lesson 1 Series eBook Formats
 - ePub, PDF, MOBI, and More
 - Hs Math Pre Cal Unit 12 Lesson 1 Series Compatibility with Devices
 - Hs Math Pre Cal Unit 12 Lesson 1 Series Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Highlighting and Note-Taking Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Interactive Elements Hs Math Pre Cal Unit 12 Lesson 1 Series
- 8. Staying Engaged with Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Hs Math Pre Cal Unit 12 Lesson 1 Series
- 9. Balancing eBooks and Physical Books Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Hs Math Pre Cal Unit 12 Lesson 1 Series
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Setting Reading Goals Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Fact-Checking eBook Content of Hs Math Pre Cal Unit 12 Lesson 1 Series
 - Distinguishing Credible Sources

13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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