

Trigonometric Identities

Pre-Calculus

Name _____

(Edit the left side of each equation until it matches the right side.)

1) $\cos \theta \sec \theta = 1$

2) $\tan \theta \cot \theta = 1$

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

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

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

6) $\cot \theta \sec \theta = \csc \theta$

7) $(1 + \cos \theta)(1 - \cos \theta) = \sin^2 \theta$

8) $\cos^2 \theta (\sec^2 \theta - 1) = \sin^2 \theta$

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

10) $(\tan \theta + \cot \theta) \tan \theta = \sec^2 \theta$

11) $\frac{\sin \theta}{\csc \theta} + \frac{\cos \theta}{\sec \theta} = 1$

12) $1 - 2 \sin^2 \theta = 2 \cos^2 \theta - 1$

13) $(1 + \sin \theta)(1 - \sin \theta) = \frac{1}{\sec^2 \theta}$

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

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

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

17) $\frac{\csc^2 \theta}{1 + \tan^2 \theta} = \cot^2 \theta$

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

19) $\sin \theta (\csc \theta - \sin \theta) = \cos^2 \theta$

20) $\cot \theta + \tan \theta = \csc \theta \sec \theta$

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

22) $\cos \theta (\tan \theta + \cot \theta) = \csc \theta$

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

24) $(\tan \theta + \cot \theta)(\cos \theta + \sin \theta) = \sec \theta + \csc \theta$

25) $(\cos^2 \theta - 1)(\tan^2 \theta + 1) = 1 - \sec^2 \theta$

26) $(\cot \theta + \csc \theta)(\tan \theta - \sin \theta) = \sec \theta - \cos \theta$

27) $\sec \theta \csc \theta + \cot \theta = \tan \theta + 2 \cos \theta \csc \theta$

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

29) $\sec^2 \theta \csc^2 \theta = \sec^2 \theta + \csc^2 \theta$

$$30) \frac{\sec \theta - \cos \theta}{\tan \theta} = \frac{\tan \theta}{\sec \theta}$$

$$31) \frac{1 + \cos \theta}{\sin \theta} + \frac{\sin \theta}{1 + \cos \theta} = 2 \csc \theta$$

$$32) \tan^2 \theta - \sin^2 \theta = \tan^2 \theta \sin^2 \theta$$

$$33) \frac{1 + \tan^2 \theta}{\tan^2 \theta} = \csc^2 \theta$$

$$34) \frac{\sec \theta + \csc \theta}{\sec \theta - \csc \theta} = \frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta}$$

$$35) \frac{1 + \sin \theta}{1 - \sin \theta} - \frac{1 - \sin \theta}{1 + \sin \theta} = 4 \tan \theta \sec \theta$$

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

$$37) \frac{1 + \csc \theta}{\sec \theta} - \cot \theta = \cos \theta$$

$$38) \frac{\cos \theta \cot \theta}{\cot \theta - \cos \theta} = \frac{\cot \theta + \cos \theta}{\cos \theta \cot \theta}$$

$$39) (\sec \theta - \tan \theta)(\csc \theta + 1) = \cot \theta$$

$$40) \frac{\cot \theta - \tan \theta}{\sin \theta + \cos \theta} = \csc \theta - \sec \theta$$

$$41) \frac{\cot \theta - 1}{1 - \tan \theta} = \cot \theta$$

$$42) \frac{1 + \sec \theta}{\tan \theta + \sin \theta} = \csc \theta$$

$$43) \csc^4 \theta - \cot^4 \theta = \cot^2 \theta + \csc^2 \theta$$

$$44) \cos^4 \theta + \sin^2 \theta = \sin^4 \theta + \cos^2 \theta$$

$$45) \frac{\cos \theta}{1 - \sin \theta} = \sec \theta + \tan \theta$$

$$46) \frac{1}{\csc \theta - \cot \theta} = \csc \theta + \cot \theta$$

$$47) \frac{\tan^2 \theta}{\sec \theta + 1} = \frac{1 - \cos \theta}{\cos \theta}$$

$$48) \frac{\cot \theta}{\csc \theta + 1} = \frac{\csc \theta - 1}{\cot \theta}$$

$$49) \frac{\cot \theta - 1}{\cot \theta + 1} = \frac{1 - \tan \theta}{1 + \tan \theta}$$

$$50) \frac{1 + \sec \theta}{\sin \theta + \tan \theta} = \csc \theta$$

$$51) \sin^4 \theta - \cos^4 \theta = \sin^2 \theta - \cos^2 \theta$$

$$52) \sin^4 \theta + 2 \sin^2 \theta \cos^2 \theta + \cos^4 \theta = 1$$

$$53) \tan^4 \theta - \sec^4 \theta = 1 - 2 \sec^2 \theta$$

$$54) \sec^4 \theta - \sec^2 \theta = \tan^4 \theta + \tan^2 \theta$$

$$55) (\sec \theta + \tan \theta)^2 = \frac{1 + \sin \theta}{1 - \sin \theta}$$

$$56) \sec^2 \theta + \tan^2 \theta = (1 - \sin^4 \theta)(\sec^4 \theta)$$

$$57) (\sin^2 \theta + \cos^2 \theta)^3 = 1$$

$$58) \frac{\sin \theta}{1 - \cos \theta} = \csc \theta + \cot \theta$$