

## Section 6.1: ( Verifying Identities )

Answer True or False for each given equation .

1)  $\sin(-\theta) \tan(-\theta) + \cos(-\theta) = \sec \theta$    2)  $\sin^4 \theta - \cos^4 \theta = \sin^2 \theta - \cos^2 \theta$    3)  $\cos^2 \theta - \sin^2(-\theta) = 1$

4)  $\sec \theta - \cos \theta = \sin \theta \tan \theta$    5)  $\sin^4 \theta + \cos^2 \theta = 1 + \sin^2 \theta$    6)  $\sin^2 \theta - \cos^2 \theta = 2 \sin^2 \theta - 1$

7)  $\tan \theta + \cot \theta = \sec \theta \csc \theta$    8)  $\cos^2 \theta (1 + \tan^2 \theta) = 1$    9)  $(\csc^2 \theta - 1) \sin^2 \theta = \cos^2 \theta$    10)  $\cos^2 \theta (1 - \sec^2 \theta) = \sin^2 \theta$

11)  $(\sin \theta - \cos \theta)^2 = \sin^2 \theta + \cos^2 \theta$    12)  $(\sin^2 \theta + \cos^2 \theta)^{\frac{1}{2}} = \sin \theta + \cos \theta$    13)  $\sin \theta \tan \theta + \cos \theta = \sec \theta$

14)  $\frac{\sec \theta - \cos \theta}{\tan \theta} = \sin \theta$    15)  $\frac{\tan(-\theta) - \cot(-\theta)}{\tan(-\theta)} = \csc^2 \theta$    16)  $\frac{1}{\csc(-\theta)} + \frac{\cot(-\theta)}{\sec(-\theta)} = -\csc \theta$    17)  $\frac{\tan(-\theta)}{\sec(-\theta)} = \sin \theta$

18)  $\frac{\sin \theta}{1 - \cos \theta} - \frac{\sin \theta}{1 + \cos \theta} = 2 \cot \theta$    19)  $\frac{\csc^2 \theta - 1}{\csc^2 \theta} = \cos^2 \theta$    20)  $\frac{1 - \cos \theta}{\sin \theta} + \frac{\sin \theta}{1 - \cos \theta} = 2 \sec \theta$    21)  $\frac{\csc(-\theta)}{\cot(-\theta)} = \sec \theta$

22)  $\frac{1 - \sin \theta}{\tan \theta} = \cot \theta - \cos \theta$    23)  $\frac{\tan \theta + \cot \theta}{\sin \theta \cos \theta} = \sec^2 \theta \csc^2 \theta$    24)  $\frac{\sec \theta}{\sin \theta + \sec \theta} = \csc \theta$    25)  $\frac{\csc \theta}{\sec \theta} = \tan \theta$

26)  $\frac{\cos^2 \theta - 1}{\cos^2 \theta} = \tan^2 \theta$    27)  $\frac{\csc \theta}{1 + \csc \theta} = \frac{1}{\sin \theta + 1}$    28)  $\sec \theta = \frac{\cot \theta + \tan \theta}{\csc \theta}$    29)  $\frac{\cos \theta + \cot \theta \sin \theta}{\cot \theta} = 2 \sin \theta$

30)  $\frac{1}{\sec \theta - \tan \theta} = \sec \theta + \tan \theta$    31)  $\frac{\sin(-\theta)}{\tan(-\theta)} = \sec \theta$    32)  $\frac{\sin(-\theta) \sec \theta}{\tan(-\theta)} = 1$    33)  $\frac{1 + \tan^2(-\theta)}{\csc^2(-\theta)} = \tan^2 \theta$

34)  $\frac{\cot^2 \theta + 1}{\tan^2 \theta + 1} = \cot^2 \theta$    35)  $\frac{\sec \theta + \csc \theta}{\cos \theta + \sin \theta} = \sec \theta \csc \theta$    36)  $\frac{\sec \theta}{\tan \theta + \cot \theta} = \sin \theta$    37)  $(\tan \theta + 1)^2 = \sec^2 \theta + 2 \tan \theta$

38)  $\frac{\tan \theta \sin \theta}{\sec^2 \theta - 1} = \cos \theta$    39)  $\frac{1 + \sin \theta}{\cos \theta} = \frac{\cos \theta}{1 - \sin \theta}$    40)  $\frac{\cot \theta \cos \theta}{\csc^2 \theta - 1} = \csc \theta$    41)  $\frac{\cos \theta}{\cos \theta - \sec \theta} = \sin^2 \theta$

42)  $(\cos \theta - \sin \theta)(\cos \theta + \sin \theta) = 1 - 2 \sin^2 \theta$    43)  $\frac{\cos \theta - \sec \theta}{\sec \theta} = \sin^2 \theta$    44)  $\frac{\cos \theta}{\cos \theta - \sec \theta} = -\cot^2 \theta$

45)  $\frac{\sin \theta}{\cos \theta + \sin \theta} = \frac{1}{\cos \theta}$    46)  $\frac{2 \cos^2 \theta}{\sin^2 \theta + 1 - 2 \sin \theta + \cos^2 \theta} = 1 + \sin \theta$    47)  $\frac{1 + \sec \theta + \tan^2 \theta}{1 + \sec \theta} = \sec \theta$

48)  $\frac{\cot \theta - 1}{\csc^2 \theta - \cot \theta - 1} = \tan \theta$    49)  $\frac{1 - \cos \theta}{1 - \cos \theta - \sin^2 \theta} = -\sec \theta$    50)  $\frac{\sin^2 \theta}{1 - \cos \theta} = 1 + \cos \theta$    51)  $\frac{\sec \theta}{\sec \theta - 1} - \frac{\sec \theta + 1}{\tan^2 \theta} = 1$