Nov 28th - ASSIGNMENT **5.1 Trig Identities** **Simplify the following.**

1. $\sec^2\theta\,(1-\sin^2\theta)$

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

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

2. $\sin x \cot x$

$\sin x \frac{\cos x}{\sin x} =$

$\cos x$

3. $(\sin\theta - 1)(\sin\theta + 1)$

$\sin^2 x - 1 =$

$-\cos^2 x$

4. $1+\tan^2\theta$

$\sec^2\theta$

5. $\tan^2 x - \sec^2 x$

1

6. $\sec x \cot x \sin x$

$\frac{\cos x \sin x}{\cos x \sin x} = 1$

7. $1+\cot^2 A$

$\csc^2 A$

8. $\csc^2 x(1-\cos^2 x)$

$\csc^2 x \cdot \sin^2 x = 1$

9. $\frac{1}{\sin^2 A} - \frac{1}{\tan^2 A}$

$\cancel{\frac{\tan^2 A - \sin^2 A}{\sin^2 A}}$

$\csc^2 A - \cot^2 A = 1$

10. $1 - \frac{\sin^2 A}{\tan^2 A}$

$1 - \sin^2 A \cot^2 A =$

$1 - \frac{\sin^2 A \cdot \cos^2 A}{\sin^2 A}$

$\sin^2 A$

11. $\frac{1}{\cos^2 A} - \frac{1}{\cot^2 A}$

$\sec^2 A - \tan^2 A =$

1

12. $\frac{\sin^2 a}{1+\cos a}$

$\frac{1-\cos^2 a}{1+\cos a} =$

$1-\cos a$

13. $\cos x(\sec x - \cos x)$

$1 - \cos^2 x =$

$\sin^2 x$

14. $\cos^2 A(\sec^2 A - 1)$

$1 - \cos^2 A =$

$\sin^2 A$

15. $(\sec B - \tan B)(\sec B + \tan B)$

$\sec^2 B - \tan^2 B = 1$

16. $\frac{\sin x \cos x}{1-\cos^2 x}$

$\frac{\sin x \cos x}{\sin^2 x} =$

$\frac{\cos x}{\sin x} = \cot x$

17. $\frac{\tan^2 x}{\sec x + 1} + 1$

$\frac{\sec^2 x - 1}{\sec x + 1} + 1 =$

$\sec x - 1 + 1 =$

$\sec x$

18. $\frac{\sin^2 x}{\cos x} + \cos x$

$\frac{\sin^2 x + \cos^2 x}{\cos x} = \sec x$

19. $(\sec^2 x - 1)(\csc^2 x - 1)$

$\tan^2 x \cdot \cot^2 x = 1$

20. $\tan^2\theta - \sec^2\theta = 1$

21. $\tan\theta \csc\theta$

$\frac{\sin x}{\cos x} \cdot \frac{1}{\sin x} =$

$\sec x$

22. $(1+\cot^2 x)(1-\cos^2 x)$

$\csc^2 x \cdot \sin^2 x = 1$

23. $(1-\sin^2\theta)(1+\tan^2\theta)$

$\cos^2\theta \cdot \sec^2\theta = 1$

24. $\sec\theta - (\tan\theta \sin\theta)$

$\frac{1}{\cos\theta} - \frac{\sin^2\theta}{\cos\theta}$

$\frac{\cos^2\theta}{\cos\theta} =$

$\cos\theta$

25. $\cos\theta\,(\sec\theta - \cos\theta)$

$1 - \cos^2\theta$

$\sin^2\theta$

26. $\csc^2 x\,(1-\cos^2 x)$

$\csc^2 x(\sin^2 x) = 1$