

PRECAL HONORS

Name _____

UNIT 7 REVIEW

Use the fundamental identities to simplify each expression as much as possible.

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

2. $\cos \theta \cdot \tan \theta$

3. $\frac{\sec \alpha - \cos \alpha}{\tan \alpha}$

Verify each of the following identities.

4. $\sec^2 \beta + 1 = \frac{1 + \cos^2 \beta}{\cos^2 \beta}$

5. $1 + \csc \gamma = \frac{1 + \sin \gamma}{\sin \gamma}$

6. $\sec^2 x - \csc^2 x = \tan^2 x - \cot^2 x$

7. $\frac{\sec \lambda}{\sec \lambda + 1} = \frac{1}{\cos \lambda + 1}$

8. $\cos\left(x - \frac{3\pi}{2}\right) = -\sin x$

9. $1 - 2\sin x \cdot \cos x + \tan^2 x = \sec^2 x - \sin(2x)$

10. $\cot^2 \theta + 2\sin^2 \theta = \csc^2 \theta - \cos(2\theta)$

Simplify.

11. $\sin(6x)\cos(5x) + \cos(6x)\sin(5x)$

12. $\cos(x)\cos(-2x) + \sin(x)\sin(-2x)$

Give the exact value of each of the following.

13. $\sin \frac{\pi}{8}$

14. $\cos \frac{3\pi}{8}$

Solve each equation for $x \in [0, 2\pi)$.

15. $-4 = -5 + \sin x$

16. $\sin(2x) = \frac{\sqrt{3}}{2}$

17. $2 \cos^2 x = -\cos(2x)$

18. $-4 \sin x - \cos^2 x + 2 = -3 \sin^2 x$