

Accl Pre-Calculus
Trig Identities Quiz

Name _____

Directions: Verify each identity. On a separate sheet of paper show each step. Work on one side of each identity only. Some problems are challenging. Choose which problem group you wish to work on (1, 2, 3, or 4).

Problem Group 1: do # 1, 5, 9, 13, 17, 21

Problem Group 2: do # 2, 6, 10, 14, 18, 22

Problem Group 3: do # 3, 7, 11, 15, 19, 23

Problem Group 4: do # 4, 8, 12, 16, 20, 24

1. $\cos^2 A \csc A \sec A = \cot A$

2. $\tan \beta (\sin \beta + \cot \beta \cos \beta) = \sec \beta$

3. $\cos x (\sec x + \cos x \csc^2 x) = \csc^2 x$

4. $(\cos x - \sin x)^2 = 1 - 2 \cos x \sin x$

5. $(\tan B + \cot B)^2 = \sec^2 B + \csc^2 B$

6. $\frac{1 + \cot^2 x}{\sec^2 x} = \cot^2 x$

7. $\frac{\sec A}{\sin A} - \frac{\sin A}{\cos A} = \cot A$

8. $\frac{1}{1 - \cos y} + \frac{1}{1 + \cos y} = 2 \csc^2 y$

9. $\cot^2 x \csc^2 x - \cot^2 x = \cot^4 x$

10. $\sec^4 a - \tan^4 a = 1 + 2 \tan^2 a$

11. $\frac{1}{\sin x \cos x} - \frac{\cos x}{\sin x} = \tan x$

12. $\frac{1}{1 - \sin r} = \sec^2 r + \sec r \tan r$

13. $\frac{\cos x}{\sec x - 1} - \frac{\cos x}{\tan^2 x} = \cot^2 x$

14. $\frac{\sec x}{\sec x - \tan x} = \sec^2 x + \sec x \tan x$

15. $\frac{1 + \sin x}{1 - \sin x} = 2 \sec^2 x + 2 \sec x \tan x - 1$

16. $\sin^3 y \cos^2 y = \sin^3 y - \sin^5 y$

17. $\sec^2 \theta + \csc^2 \theta = \sec^2 \theta \csc^2 \theta$

18. $\frac{1}{\sec \theta - \tan \theta} = \sec \theta + \tan \theta$

19. $\frac{1 - 3 \cos x - 4 \cos^2 x}{\sin^2 x} = \frac{1 - 4 \cos x}{1 - \cos x}$

20. $\frac{\sec^2 x - 6 \tan x + 7}{\sec^2 x - 5} = \frac{\tan x - 4}{\tan x + 2}$

21. $\frac{\sec^3 y - \cos^3 y}{\sec y - \cos y} = \sec^2 y + 1 + \cos^2 y$

22. $(2 \sin x + 3 \cos x)^2 + (3 \sin x - 2 \cos x)^2 = 13$

23. $\frac{1}{1 - \sin \alpha} + \frac{1}{1 + \sin \alpha} = 2 \sec^2 \alpha$

24. $\frac{1 - \cos A}{\sin A} = \frac{\sin A}{1 + \cos A}$