

Algebra 3 w/Trig
Review for Ch 9.1-9.4 TEST

Name: _____

Simplify:

1) $\csc 38^\circ \cdot \sin 38^\circ$

2) $\sin 15^\circ \cos 65^\circ + \cos 15^\circ \sin 65^\circ$

3) $\sec^2 x \cdot \sin x \cdot \cos x$

4) $\frac{\tan 105^\circ + \tan 30^\circ}{1 - \tan 105^\circ \tan 30^\circ}$

Write each function in terms of its cofunction.

5) $\sin 35^\circ$

6) $\sin \frac{\pi}{6}$

7) $\cot 50^\circ$

8) $\cos 15^\circ$

Find the exact value of sine, cosine, and tangent of 2θ .

9. $\sin \theta = \frac{5}{13}, \theta$ in Quadrant II.

10. $\cos \theta = -\frac{4}{5}, \theta$ in Quadrant II.

Find the exact value of sine, cosine and tangent of $\frac{1}{2}\theta$.

11. $\sin \theta = \frac{5}{13}, \theta$ in Quadrant II.

12. $\sin \theta = \frac{3}{5}, \theta$ in Quadrant I.

Find the exact value of the following using the addition or subtraction identities:

13. $\cos 75^\circ$

14. $\tan 15^\circ$

15. $\sin 105^\circ$

Simplify the following:

16. $\sin\left(x + \frac{\pi}{2}\right)$

17. $\cos(x - \pi)$

18. If $\sin x = \frac{1}{4}$ and $0 < x < \frac{\pi}{2}$, then $\sin\left(\frac{\pi}{3} + x\right) = ?$

19. If $\sin x = -\frac{2}{5}$ and $\frac{3\pi}{2} < x < 2\pi$, then $\cos\left(\frac{\pi}{4} + x\right) = ?$

Prove the following identities:

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

21. $\cos^4 \theta - \cos^6 \theta = \cos^4 \theta \cdot \sin^2 \theta$

22. $\cos(x - \pi) = -\cos x$

22. $\cot x = \frac{\sin 2x}{1 - \cos 2x}$

23. $\frac{\sin x}{\csc x} + \frac{\cos x}{\sec x} = 1$

23. $(1 + \cos x)(1 - \cos x) = \sin^2 x$