

Pre-Calculus – 5-1 Practice

Learning Target: *I can use trig identities to simplify expressions.*

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

2. $\frac{1 + \cos x \tan x \csc x}{\csc x}$

3. $\frac{\sin^4 x - \sin^2 x}{\sec x}$

4. $\frac{-\tan^2 x - 1}{\sec^2 x}$

5. $\frac{\tan^3 x - \sec^2 x \tan x}{\cot(-x)}$

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

7. $\frac{1}{\sin^3 x} + \frac{\cot^2 x}{\sin(-x)}$

8. $\sin(-x)\cot(-x)$

9. $\frac{\sin x}{\cos(-x)} + \frac{\sin(-x)}{\cos x}$

10. $\frac{1}{\cos\left(\frac{\pi}{2} - \theta\right)}$

11. $\frac{\tan \theta}{\csc\left(\theta - \frac{\pi}{2}\right)}$

12. $\frac{1}{\cos^2 \theta} - \frac{1}{\cot^2 \theta}$

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

14. $(\csc x - 1)(\csc x + 1)$

15. $\frac{\sec^2 \theta - \tan^2 \theta}{\csc\left(\frac{\pi}{2} - \theta\right)}$

16. $\frac{\sin x}{\csc x} + \frac{\cos x}{\sec x}$

Learning Target: *I can use trig identities to calculate non-Unit Circle trig value without a calculator.*

17. Find $\cos \theta$ and $\sin \theta$, if $\tan \theta = \frac{1}{2}$; $\sin \theta > 0$.

18. Find $\tan \theta$ and $\sec \theta$, if $\sin \theta = \frac{3}{4}$; $\cos \theta < 0$.

19. Find $\csc \theta$ and $\tan \theta$, if $\sec \theta = \frac{-4\sqrt{5}}{5}$; $\sin \theta > 0$.

Learning Target: *I can use trig identities to solve equations.*

20. $\frac{1 + \sin x}{\cos x} + \frac{\cos x}{1 + \sin x} = 4$

21. $\cot x \cos^2 x = 2 \cot x$

22. $2 \sin^2 \theta = 3 \cos \theta$

23. $\tan x = 3 \sin x$

24. $\sec \theta = 2 \cos \theta$

25. $\frac{4}{\sec^2 x} + 3 \cos x = 2 \cot x \tan x$

26. $4 \sin x \cos x + 2 \sin x - 2 \cos x - 1 = 0$

27. $\cos^2 \theta = -6 \sin \theta$