Honors PreCalculus – Simplifying Trig Expressions Worksheet

DO NOT WRITE ON THIS WORKSHEET

Simplify the following trig expressions completely:

1. $\dfrac{\tan^2 x + 1}{1 + \cot^2 x}$

2. $\dfrac{1}{\sec x - \tan x} - \dfrac{1}{\sec x + \tan x}$

3. $\sec x \tan x \cos x$

4. $\sin^2 x \cot x \csc x$

5. $\dfrac{1 - \cos^2 t}{\sin^2 t}$

6. $\dfrac{\tan^2 x}{1 - \sec^2 x}$

7. $\tan^2 x \left(\csc^2 x - 1\right)$

8. $\dfrac{\cos^2 x}{1 - \cos^2 x}$

9. $\dfrac{\sec^2 x - 1}{\tan x}$

10. $\dfrac{\cos^2 x - 1}{\sin^2 x - 1}$

11. $\cos x \left(\sec x - \cos x\right)$

12. $\cot x \left(\tan x + \cot x\right)$

13. $\dfrac{\tan x + \cot x}{\cot x}$

14. $\dfrac{\tan x}{\tan x + \cot x}$

15. $\sec x \cot x - \cot x \cos x$

16. $\sin x \tan x - \csc x \tan x$

17. $\dfrac{\cot^2 x \cos^2 x}{\cot^2 x - \cos^2 x}$

18. $\dfrac{\sin^2 x - \tan^2 x}{\tan^2 x \sin^2 x}$

19. $\dfrac{\left(\sin x + \tan x\right)^2 + \cos^2 x - \sec^2 x}{\tan x}$

20. $\dfrac{2\sin x \cos x + \left(\sin x - \cos x\right)^2}{\sec x}$

21. $\dfrac{\sin x \left(1 + \sin x\right)}{1 - \cos^2 x} - 1$

22. $\dfrac{1 - \tan^2 x}{1 + \tan^2 x} + 1$