

Honors PreCalculus – Simplifying Trig Expressions Worksheet

DO NOT WRITE ON THIS WORKSHEET

Simplify the following trig expressions completely:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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