

Pre-Calculus Section 5.1-5.2 (WORKSHEET #1)

Directions: Please show all work neatly on another sheet of paper

SIMPLIFY THE FOLLOWING EXPRESSIONS

1) $\sec x \tan^2 x + \sec x$

2) $\frac{1 + \tan^2\left(\frac{\pi}{2} - x\right)}{1 + \cot^2\left(\frac{\pi}{2} - x\right)}$

3) $\sqrt{1 - \cos^2 x}$

4) $\frac{2 \tan x}{1 + \tan^2 x}$

Identities

Match the expression with one of the following(answers can be used more than once or not at all)

(a) 1 (b) $\csc x$ (c) $\tan^2 x$ (d) $\sec x$ (e) $2 \sec x$ (f) $-\tan x$ (g) $\cot x$ (h) $\tan x$ (i) -1

5) $\csc x \tan x \cos x$

6) $\frac{1 + \sin x}{\cos x} + \frac{\cos x}{1 + \sin x}$

7) $\frac{1}{\cos\left(\frac{\pi}{2} - x\right)}$

8) $\sin x \tan x + \sin(90^\circ - x)$

9) $(\sec x + 1)(\sec x - 1)$

10) $\frac{\sec^2 x}{\tan x} - \frac{\sin x}{\cos x}$

11) $\frac{\cos x}{\sin x} - \frac{\csc x}{\cos x}$

Verify the identity:

12) $\frac{\sec^2 \theta - 6 \tan \theta + 7}{\sec^2 \theta - 5} = \frac{\tan \theta - 4}{\tan \theta + 2}$

15) $\frac{\sin^3 \beta - \cos^3 \beta}{\sin \beta - \cos \beta} = 1 + \sin \beta \cos \beta$

13) $\ln|\sec x| = -\ln|\cos x|$

14) $\frac{1}{\sin x \cos x} + \frac{\cos(-x)}{\sin(-x)} = \tan x$

16) $\frac{\tan \gamma}{\tan^2 \gamma - 1} = \frac{1}{\tan \gamma - \cot \gamma}$

Section 5.1-5.2 Worksheet Answers:

1) $\sec^3 x$

2) $\cot^2 x$

3) $|\sin x|$

4) $2 \sin x \cos x$

5) A

6) E

7) B

8) D

9) C

10) G

11) F

12-16) Answers may vary for verifying proofs.