

Trig Identities II (6.1)

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day 2

Quiz 8

Assignment 3 due

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#W: p296#4, 10

4. Simplify, and then rewrite each expression as one of the three reciprocal trigonometric functions, csc x, sec x, or cot x.

a) $\left(\frac{\cos x}{\tan x}\right)\left(\frac{\tan x}{\sin x}\right)$

b) $\csc x \cot x \sec x \sin x$

c) $\frac{\cos x}{1 - \sin^2 x}$

$$\sin^2 x + \cos^2 x = 1$$

10. Simplify $\frac{\csc x}{\tan x + \cot x}$ to one of the three primary trigonometric ratios. What are the non-permissible values of the original expression in the domain $0 \leq x < 2\pi$?

$$\cos^2 x = 1 - \sin^2 x$$

$$= \frac{\cos x}{\cos^2 x}$$

$$= \frac{1}{\cos x}$$

$$= \sec x$$

10.

$$\frac{\csc x}{\tan x + \cot x} = \frac{\frac{1}{\sin x}}{\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x}}$$

$$= \frac{\frac{1}{\sin x}}{\frac{\sin^2 x}{\sin x \cos x} + \frac{\cos^2 x}{\sin x \cos x}}$$

$$= \frac{\frac{1}{\sin x}}{\frac{\sin^2 x + \cos^2 x}{\sin x \cos x}}$$

$$= \frac{\frac{1}{\sin x}}{\frac{1}{\sin x \cos x}}$$

$$= \frac{\cancel{\sin x} \cos x}{\cancel{\sin x}} = \cos x$$

$$\frac{1}{\frac{1}{3}} = 3$$

$$\frac{1}{\cancel{\sin x}} \cdot \frac{\cancel{\sin x} \cos x}{1} = \cos x$$

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work on Trig Identities sheet #1 - 7 *4

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$\sin^2 \theta + \cos^2 \theta = 1$$

$$\cos^2 \theta = 1 - \sin^2 \theta$$

$$\tan^2 \theta + 1 = \sec^2 \theta$$

flow down the page
never erase
convert all to sin and cos

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#W: sheet #1 - 7, 4*