

Mon 6 Feb 2012

Note Title

2/6/2012

Questions 5, 6, 7, 14, 32, 39

$$6. \cos^2 \theta - \sin^2 \theta = 2 \cos^2 \theta - 1$$

$$\cos^2 \theta - (1 - \cos^2 \theta)$$

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

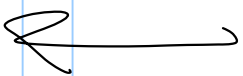
$$\cos^2 \theta - 1 + \cos^2 \theta$$

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

$$7. \tan^2 \theta + 6 = \sec^2 \theta + 5$$

$$\tan^2 \theta + 1 + 5$$

$$\sec^2 \theta + 5 = \sec^2 \theta + 5$$



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

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

$$1. \sec x - \cos x = \sin x \tan x$$

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

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

$$\frac{\sin x \cdot \sin x}{\cos x}$$

$\sin x \tan x$

$$32. \frac{\tan x + \cot x}{\tan x \cot x} = \boxed{\tan x + \cot x}$$

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

$$\frac{1}{\cot x} + \frac{1}{\tan x}$$

$$\tan x + \cot x$$

$$39. \frac{d}{dx} \sec^2 x - \frac{d}{dx} \sec^2 x \sin^2 x - \sin^2 x - \cos^2 x = 1$$

$$\frac{d}{dx} \sec^2 x (1 - \sin^2 x) - 1 (\sin^2 x + \cos^2 x)$$

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

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

$$\frac{d}{dx} \sec^2 x (\cos^2 x) - 1 (1)$$

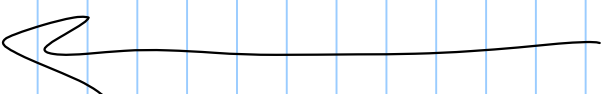
$$\frac{d}{dx} \frac{1}{\cos^2 x} - 1$$

$$\frac{d}{dx} - 1$$

$$1$$

$$=$$

$$1$$



51, 53, 55, 63-66, 71, 73, & 75

51. $y = 1 / (1 / \tan(x) + 1) + 1 / (\tan(x) + 1)$

$$1 / (1 / \tan(x) + 1) + 1 / (\tan(x) + 1) = 1 \quad \text{Verify}$$

$$55. \ln |\cot \theta| = \ln |\cos \theta| - \ln |\sin \theta|$$

$$\ln \left(\frac{\cos \theta}{\sin \theta} \right)$$

$$\boxed{\ln \cot \theta}$$



$$63. \tan^5 x = \tan^3 x \sec^2 x - \tan^3 x$$

$$= \tan^3 x (\sec^2 x - 1)$$

$$= \tan^3 x \cdot \tan^2 x$$

$$= \tan^5 x$$

$$71. \mu W \cos \theta = W \sin \theta$$

$$\mu = \frac{W \sin \theta}{W \cos \theta}$$

$$\mu = \tan \theta$$

Proved