Mon 6 Feb 2012

Note Title 2/6/2012

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

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

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

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

$2\cos^2\beta - 1$

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

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

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

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

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

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

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

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

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

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

$\sin x \tan x$

32. $\dfrac{\tan x + \cot y}{\tan x \cot y} = \tan y + \cot x$

$\dfrac{\tan x}{\tan x \cot y} + \dfrac{\cot y}{\tan x \cot y}$

$\dfrac{1}{\cot y} + \dfrac{1}{\tan x}$

$\tan y + \cot x$

39. $2\sec^2 x - 2\sec^2 x \sin^2 x - \sin^2 x - \cos^2 x = 1$

$2\sec^2 x(1 - \sin^2 x) - 1(\sin^2 x + \cos^2 x)$

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

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

$2\sec^2 x(\cos^2 x) - 1(1)$

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

$2 - 1$

$1 = 1$

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

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

$1/(1/\tan(x) + 1) + 1/(\tan(x) + 1) = 1$ 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. $\mu W \cos\theta = W \sin\theta$

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

$\mu = \tan\theta$

period 7