MAT123 QUIZ#4

Name:

1. Find the terminal points of the given angle t.

a) $t = -\frac{\pi}{2}$

(0,-1)

b) $t = \frac{11\pi}{6}$

$\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$

2. Change degrees to radians.

a) $60°$

$\frac{\pi}{3}$

b) $480°$

$\frac{8\pi}{3}$

You may simply get this result by multiplying 8 to the result of part a), since 60×80=480.

3. Prove the following identity.

$(\cot x - \csc x)(\cot x + 1) = -\sin x$

$$L.H.S. = \left(\frac{\cos x}{\sin x} - \frac{1}{\sin x}\right)(\cos x + 1)$$

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

(Now, use the fact that $\cos^2 x = 1 - \sin^2 x$.)

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