Math 1160K - Fall 2014 Name:_____

§8.1, §8.2 – Inverse Trig Functions

1. Find the *exact* value of the following expressions. Give your final answer in the provided space.

   (a) $\tan\left(\sin^{-1}\frac{1}{3}\right) =$ _____

   (b) $\cos\left(\sin^{-1}\left(-\frac{\sqrt{2}}{3}\right)\right) =$ _____

   (c) $\csc\left(\tan^{-1}(-2)\right) =$ _____

   (d) $\cot\left(\cos^{-1}\left(-\frac{\sqrt{3}}{3}\right)\right) =$ _____

   (e) $\sin^{-1}\left(\cos\frac{2\pi}{3}\right) =$ _____

(f) $\tan^{-1}\left(\tan\frac{7\pi}{4}\right) =$ _____

(g) $\cos^{-1}(\cos(-\pi)) =$ _____

(h) $\sin^{-1}\left(\sin\frac{\pi}{2}\right) =$ _____

2. Write the following as an algebraic expression in ξ:

$$\tan\left(\sin^{-1}\xi\right)$$

3. Find the inverse of the following function. Give the domain and range of the inverse function in interval or set notation.

$$g(x) = \tan(2x+3) - 1, \quad -\frac{\pi}{4} - \frac{3}{2} < x < \frac{\pi}{4} - \frac{3}{2}$$

Domain of g^{-1}: _____

Range of g^{-1}: _____