MA-115 (W,00)
Quiz on Inverse Functions

Name_____

No calculators on this quiz. Do 1 - 3 below the line on this page.
Do 4 and 5 on the coordinate systems on the next page.

1. Find <u>exactly</u> these values. If there is no value, say so. When you write your result, you must write it as a mathematical sentence, like "$\sec^{-1} w = t$."

a. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$ b. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ c. $\tan^{-1}(\sqrt{3})$ d. $\tan^{-1}(-1)$ e. $\sin^{-1}\left(\frac{\pi}{3}\right)$

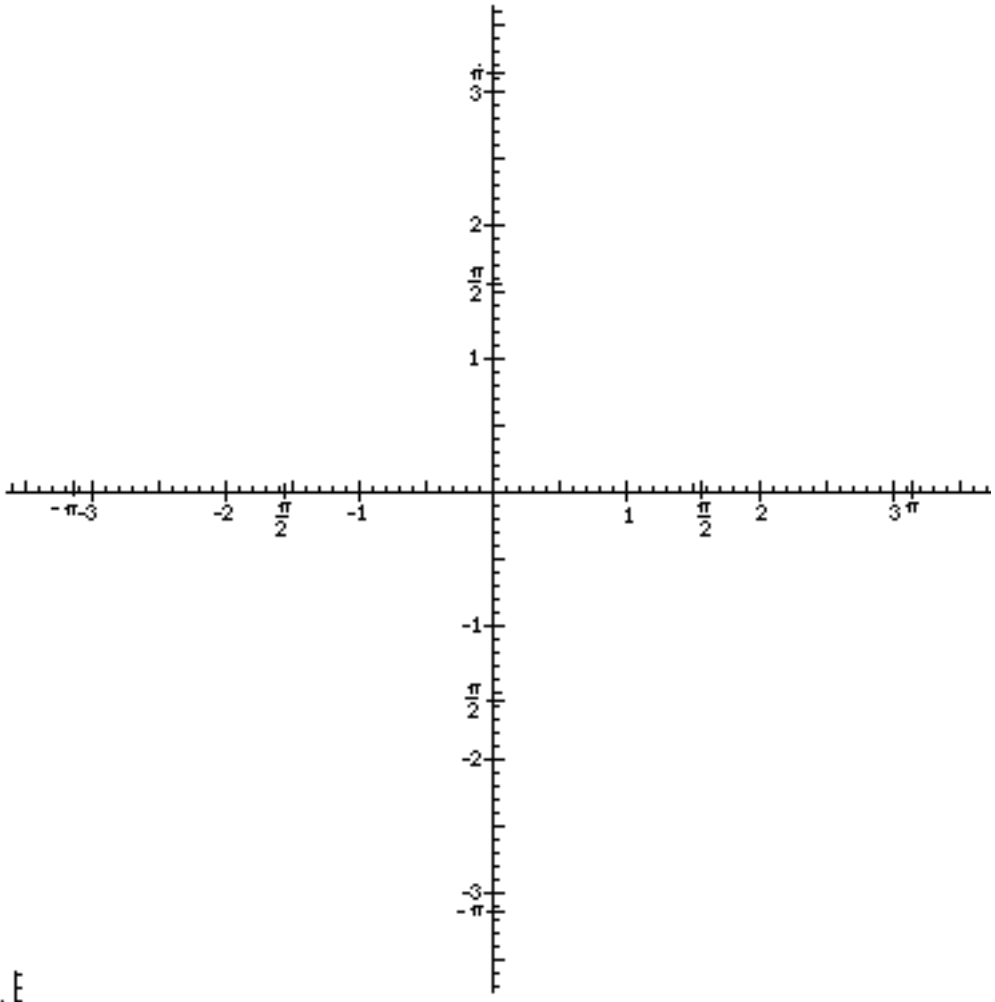
2. Simplify: a. $\cos(\sin^{-1}\frac{a}{b})$ b. $\sec^2(\tan^{-1}x)$

3. Tell five ordered pairs on the graph of $y = \cos^{-1}x$. For these, two values of x must be positive and two must be negative.

4. On the first coordinate system on the next page, draw **carefully** the graph of $y = \tan x$ for $-\pi \le x \le \pi$. On the same coordinate system, draw the graph of $y = \tan^{-1} x$. <u>Tell which graph is which</u>. Include auxiliary lines and asymptotes when appropriate.

5. On the second coordinate system on the next page, draw **carefully** the graphs of $y = \cos x$ for $-\pi \le x \le \pi$. On the same coordinate system, draw the graph of $y = \cos^{-1} x$. <u>Tell which graph is which</u>. Include auxiliary lines and asymptotes when appropriate.

Coordinate system for Problem 4.



Coordinate system for Problem 5.