Math 51 (7:30am – 8:20am)
Quiz 7
Fri Jun 5, 2009

SCORE: ___ / 20 POINTS

What month is your birthday ? ___ ___
What are the first 2 digits of your address ? ___ ___
What are the last 2 digits of your zip code ? ___ ___
What are the last 2 digits of your social security number ? ___ ___
[IF YOU DO NOT HAVE A SOCIAL SECURITY NUMBER, USE YOUR STUDENT ID NUMBER]

NO CALCULATORS ALLOWED

Fill in the blanks.

SCORE: ___ / 6 POINTS

[a] The range of $y = \tan^{-1} x$ is $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

[b] The domain of $y = \sin^{-1} x$ is $[-1, 1]$

[c] $\arcsin \frac{1}{2} = \frac{\pi}{6}$

[d] $\arccos 0 = \frac{\pi}{2}$

[e] $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) = \frac{5\pi}{6}$

[f] $\tan^{-1}\left(\frac{\sqrt{3}}{3}\right) = \frac{\pi}{6}$

Solve $\cos^2 x - 3 = 3\sin x$ in the interval $[0, 2\pi)$.

SCORE: ___ / 3 POINTS

$1 - \sin^2 x - 3 = 3\sin x$

$0 = \sin^2 x + 3\sin x + 2$

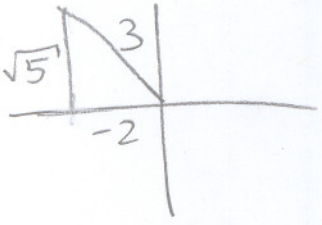
$0 = (\sin x + 1)(\sin x + 2)$

$\sin x = -1$ OR ~~$\sin x = -2$~~

$x = \frac{3\pi}{2}$

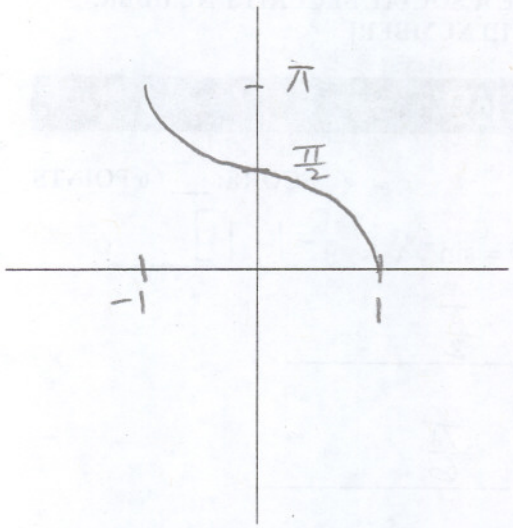
Find the exact value of $\tan\left(\cos^{-1}\left(-\frac{2}{3}\right)\right)$.

SCORE: ___ / 2 POINTS



$\tan\left(\cos^{-1}\left(-\frac{2}{3}\right)\right) = -\frac{\sqrt{5}}{2}$

Sketch the graph of $y = \cos^{-1} x$. Label all x- and y-coordinates shown in class, including all intercepts. **SCORE: ___ / 3 POINTS**



Solve $1 - 2\sec x = 5$ in the interval $[0, 2\pi)$. **SCORE: ___ / 3 POINTS**

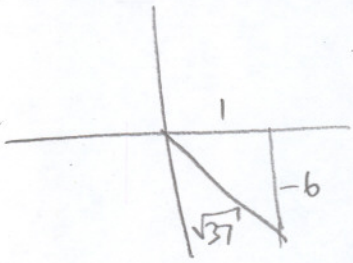
$-2\sec x = 4$

$\sec x = -2$

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

$x = \frac{2\pi}{3}, \frac{4\pi}{3}$

Find the exact value of $\sin(2\arctan(-6))$. **SCORE: ___ / 3 POINTS**



$\sin(2\arctan(-6))$

$= 2\left(\frac{-6}{\sqrt{37}}\right)\left(\frac{1}{\sqrt{37}}\right)$

$= \frac{-12}{37}$