Math 49B (8:30am – 9:20am)
Quiz 3 Version B
Fri Jan 21, 2011

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 DeAnza ID number ? ___ ___

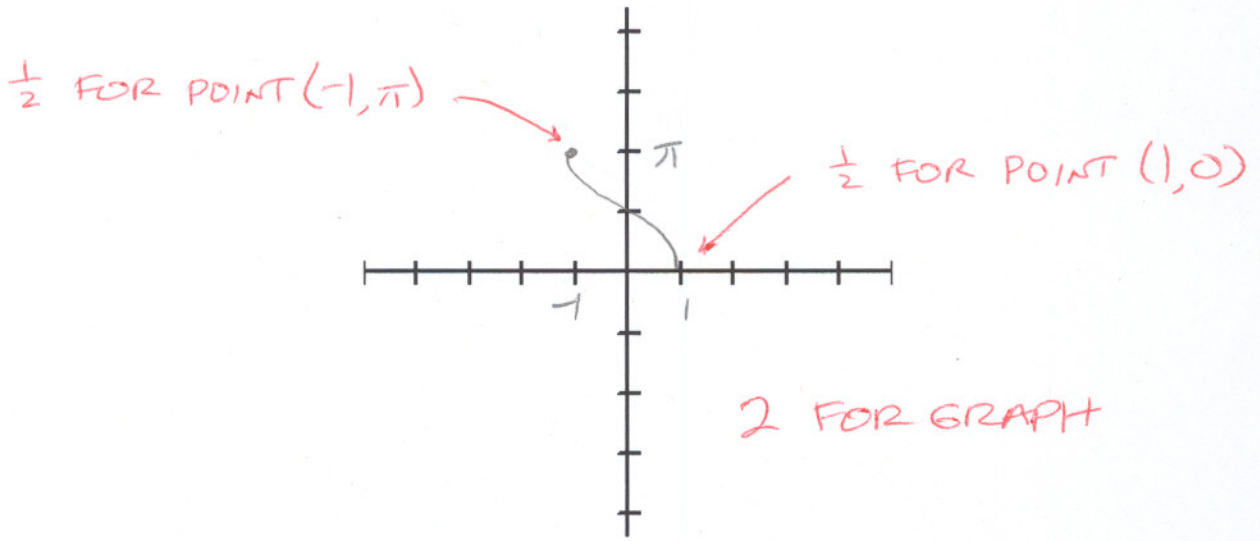
SCORE: ___ / 30 POINTS

NO CALCULATORS ALLOWED

YOU MUST SHOW APPROPRIATE WORK TO RECEIVE FULL CREDIT

Graph $y = \cos^{-1} x$. Label the $x-$ and $y-$ co-ordinates shown in class. **SCORE: ___ / 3 POINTS**

Draw your graph on the axes included below.



Solve the equation $6\cos x + 3 = 0$. **SCORE: ___ / 4 POINTS**

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

$x = \frac{2\pi}{3} + 2n\pi$ OR $\frac{4\pi}{3} + 2n\pi$ (1, ½, 1, ½)

OR

$x = \pm\frac{2\pi}{3} + 2n\pi$

WATCH OUT FOR BRACKETS [ ] VERSUS PARENTHESES ( )

Fill in the blanks. **SCORE: ___ / 5 POINTS**

[a] The range of $y = \cos^{-1} x$ is $[0, \pi]$ (1).

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

[c] The range of $y = \arctan x$ is $(-\frac{\pi}{2}, \frac{\pi}{2})$ (1).

[d] The period of $y = \cot x$ is π, $\frac{1}{2}$.

[e] The **equations** of the asymptotes of $y = \cot x$ are $x = n\pi$, $n \in \mathbb{Z}$ (½, ½, ½).

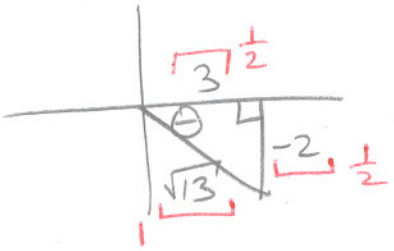
Find the exact value of $\sin\left(\arctan\left(-\frac{2}{3}\right)\right)$.

SCORE: ___ / 4 POINTS

LET $\theta = \arctan\left(-\frac{2}{3}\right)$

$\tan\theta = -\frac{2}{3}$ AND $-\frac{\pi}{2} < \theta < \frac{\pi}{2}$ (IE. IN Q_1 OR Q_4)

SINCE $\tan\theta < 0$, θ IN Q_4



$\sin\left(\arctan\left(-\frac{2}{3}\right)\right) = -\frac{2}{\sqrt{13}}$ OR $\frac{-2\sqrt{13}}{13}$

Graph two periods of the function $y = \tan 4x$. Label the co-ordinates of the asymptotes.

SCORE: ___ / 4 POINTS

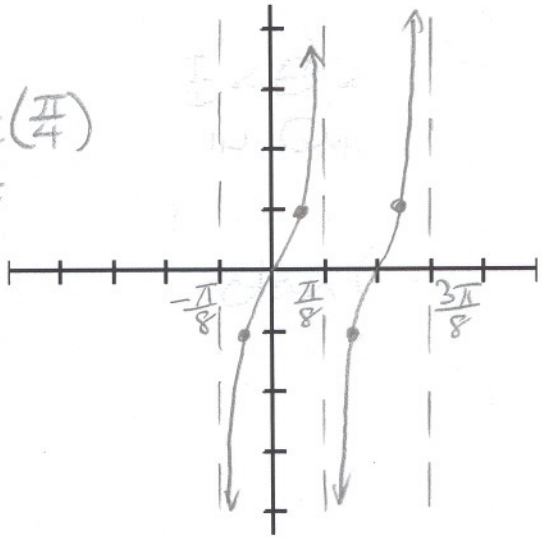
Draw your graph on the axes included below.

PERIOD $= \frac{\pi}{4}$

ASYMPTOTES $x = \pm\frac{1}{2}\left(\frac{\pi}{4}\right)$

$= \pm\frac{\pi}{8}$

$\frac{\pi}{8} + \frac{\pi}{4} = \frac{3\pi}{8}$



POINTS FOR LABELLED ASYMPTOTES

$\frac{1}{2}$ $x = -\frac{\pi}{8}$

$\frac{1}{2}$ $x = \frac{\pi}{8}$

$\frac{1}{2}$ $x = \frac{3\pi}{8}$

$2\frac{1}{2}$ FOR GRAPH

Fill in the blanks. Write DNE if the expression has no value.

SCORE: ___ / 6 POINTS

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

[b] $\arctan\left(\frac{\sqrt{3}}{3}\right) =$ $\frac{\pi}{6}$ 1

[c] $\arcsin\left(-\frac{\sqrt{3}}{2}\right) =$ $-\frac{\pi}{3}$ 1

[d] $\sin\left(\sin^{-1}\frac{4}{3}\right) =$ DNE 1

[e] $\arccos\left(\cos\frac{7\pi}{6}\right) =$ $\frac{5\pi}{6}$ 1

[f] $\tan(\tan^{-1}(-11)) =$ -11 1

Find all solutions of $4\csc x + 8 = 0$ in the interval $[0, 2\pi)$.

SCORE: ___ / 4 POINTS

$\csc x = -2$ 1

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

$x = \frac{7\pi}{6}, \frac{11\pi}{6}$

1 1