

SCORE: ____ / 30 POINTS

NO CALCULATORS ALLOWED**YOU MUST SHOW APPROPRIATE WORK TO RECEIVE FULL CREDIT**

Fill in the blanks.

BE CAREFUL ABOUT INEQUALITIES

SCORE: ____ / 5 POINTS

[a] The period of $y = \cot x$ is $\pi, \frac{1}{2}$.[b] The range of $y = \arctan x$ is $-\frac{\pi}{2} < y < \frac{\pi}{2}$.[c] The domain of $y = \sin^{-1} x$ is $-1 \leq x \leq 1$.[d] The range of $y = \cos^{-1} x$ is $0 \leq y \leq \pi$.[e] The equations of the asymptotes of $y = \cot x$ are $x = n\pi, n \in \mathbb{Z}$.Graph two periods of the function $y = \tan 5x$. Label the co-ordinates of the asymptotes.

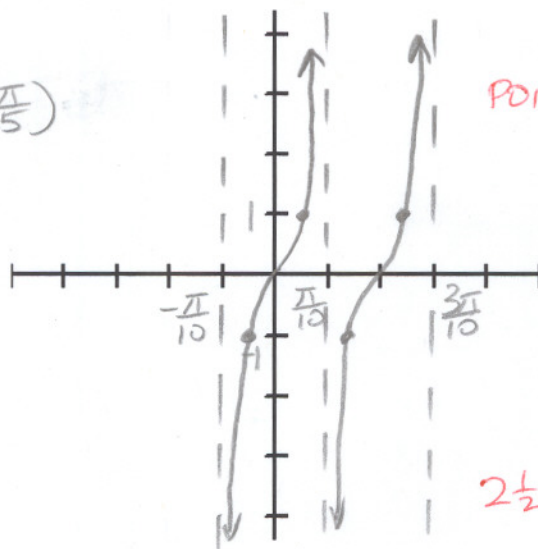
SCORE: ____ / 4 POINTS

Draw your graph on the axes included below.

PERIOD = $\frac{\pi}{5}$

ASYMPTOTES $x = \pm \frac{1}{2} \left(\frac{\pi}{5} \right)$
 $= \pm \frac{\pi}{10}$

$\frac{\pi}{10} + \frac{\pi}{5} = \frac{3\pi}{10}$

**LABELLED POINTS FOR ASYMPTOTES:**

$\frac{1}{2} \quad x = -\frac{\pi}{10}$

$\frac{1}{2} \quad x = \frac{\pi}{10}$

$\frac{1}{2} \quad x = \frac{3\pi}{10}$

2 1/2 FOR GRAPHFind all solutions of $3 \csc x + 6 = 0$ in the interval $[0, 2\pi)$.

SCORE: ____ / 4 POINTS

$$\begin{aligned} \csc x &= -2 \\ \sin x &= -\frac{1}{2} \\ x &= \frac{7\pi}{6}, \frac{11\pi}{6} \end{aligned}$$



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

SCORE: ___ / 6 POINTS

[a] $\sin^{-1} \frac{\sqrt{3}}{2} =$ $\frac{\pi}{3}$

[b] $\arccos\left(-\frac{\sqrt{3}}{2}\right) =$ $\frac{5\pi}{6}$

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

[d] $\arcsin\left(\sin \frac{7\pi}{6}\right) =$ $-\frac{\pi}{6}$

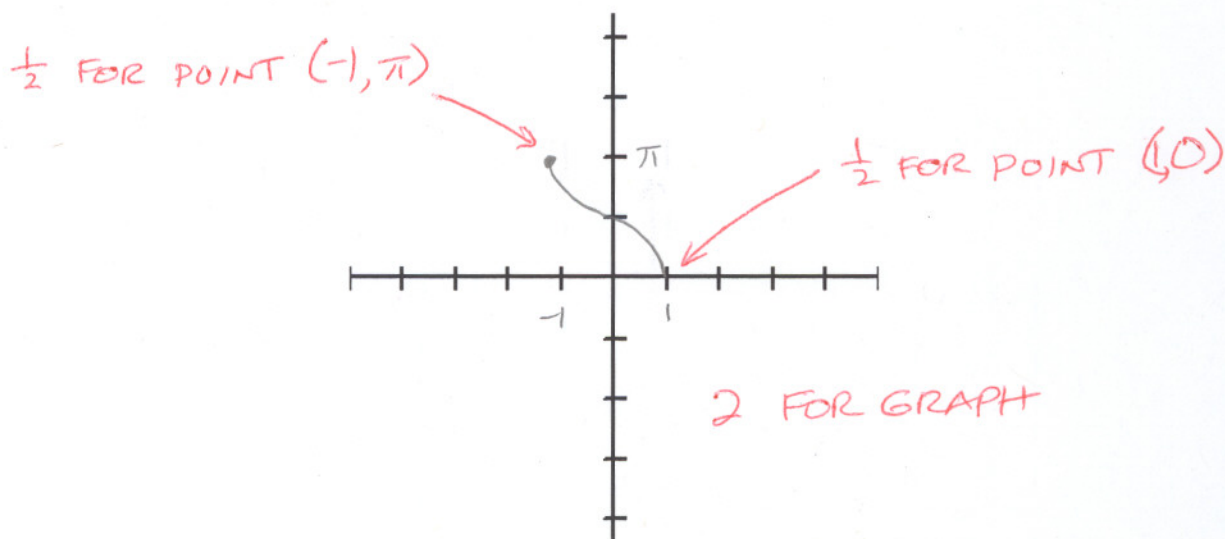
[e] $\cos\left(\cos^{-1} \frac{3}{2}\right) =$ DNE

[f] $\tan(\arctan 10) =$ 10

Graph $y = \cos^{-1} x$. Label the x - and y -co-ordinates shown in class.

SCORE: ___ / 3 POINTS

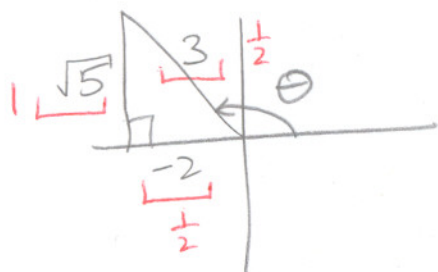
Draw your graph on the axes included below.



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

SCORE: ___ / 4 POINTS

LET $\theta = \arccos\left(-\frac{2}{3}\right)$
 $\cos \theta = -\frac{2}{3}$ AND $0 \leq \theta \leq \pi$ (IE. IN Q_1 OR Q_2)
 SINCE $\cos \theta < 0$, θ IN Q_2



$\tan(\arccos(-\frac{2}{3})) = -\frac{\sqrt{5}}{2}$

Solve the equation $8 \cos x + 4 = 0$.

SCORE: ___ / 4 POINTS

$\cos x = -\frac{1}{2}$
 $x = \frac{2\pi}{3} + 2n\pi$ OR $\frac{4\pi}{3} + 2n\pi$
 OR
 $x = \pm \frac{2\pi}{3} + 2n\pi$