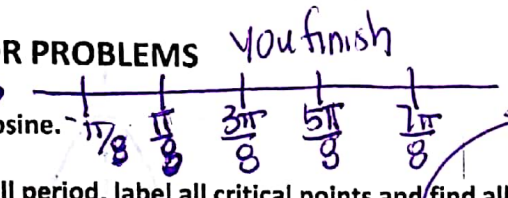
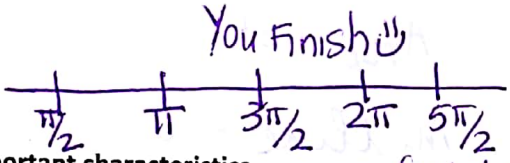
Review for Test 4.4-4.7

NONCALCULATOR PROBLEMS

Graphs of sine and cosine.





1) Graph one full period, label all critical points and find all important characteristics

a) $y = 3\sin\left(2x + \frac{\pi}{4}\right) - 1$ Amp = 3, Per = π, Phase Shift $-\frac{\pi}{8}$, Midline = −1

b) $y = 2 - 4\cos\left(x - \frac{\pi}{2}\right)$ Amp = 4, Period = 2π, reflected cosine, shift right $\frac{\pi}{2}$, Midline = 2

For problems 2 – 5, sketch the graph of the function. Be sure to label each tick mark, and find all critical values. For numbers 2 and 3, graph two cycles, and for numbers 4 and 5, graph one cycle.

You practice Graphing key values for one period are Here

2 $y = -3\tan\left(x - \frac{\pi}{2}\right)$ VA $x = 0$, $x = \pi$, $\left(\frac{\pi}{4}, 3\right)\left(\frac{\pi}{2}, 0\right)\left(\frac{3\pi}{4}, -3\right)$

3. $y = 2\cot(x) + 1$ VA $x = 0$, VA $x = \pi$, $\left(\frac{\pi}{4}, 3\right)\left(\frac{\pi}{2}, 1\right)\left(\frac{3\pi}{4}, -1\right)$

4. $y = -4\csc\left(3x + \frac{\pi}{3}\right)$ Graph sine first. VA $x = -\frac{\pi}{9}$, $x = \frac{2\pi}{9}$, $x = \frac{5\pi}{9}$, $\left(\frac{\pi}{18}, -4\right)\left(\frac{7\pi}{18}, 4\right)$ Restrictions!

5. $y = \sec(4x) - 3$ graph cosine first. VA $x = \frac{\pi}{8}, \frac{3\pi}{8}$, $(0, -2)\left(\frac{\pi}{4}, -4\right)\left(\frac{\pi}{2}, -2\right)$

For problems 6 – 11 evaluate each expression

6. $\arcsin(-1) =$ $-\pi/2$

7. $\cos^{-1}(1) =$ 0

8. $arc\cot\left(\sqrt{3}\right) =$ $\pi/6$ ($\tan^{-1}\left(\frac{\sqrt{3}}{3}\right)$)

9. $arc\sec\left(-\sqrt{2}\right) =$ $3\pi/4$ ($\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)$)

10. $\sin(\arcsin 0.3) =$ 0.3 ($\frac{3}{10}$)

11. $\tan^{-1}\left(\tan\frac{11\pi}{6}\right) =$ $-\pi/6$ ($\tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$)

12. If possible, find the exact value.

a. $\arcsin\left(-\frac{1}{2}\right) = -\frac{\pi}{6}$

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

c. $\sin^{-1}(2)$ DNE since there is no angle that has a sine of 2 (sine values $[-1, 1]$)

13. Find the exact value.

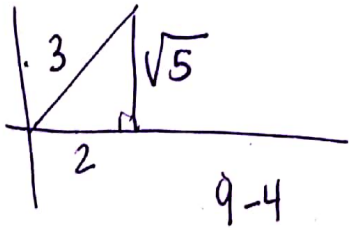
a. $\arccos\left(\frac{\sqrt{2}}{2}\right) = \frac{\pi}{4}$

b. $\arctan(0) = 0$

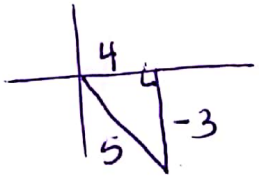
c. $\tan^{-1}(-1) = -\frac{\pi}{4}$

14. Find the exact value. Make a Δ

a. $\tan\left(\arccos\frac{2}{3}\right)$ ($\cos\theta = \frac{2}{3}$) $\tan\theta = \frac{\sqrt{5}}{2}$



b. $\cos\left[\arcsin\left(-\frac{3}{5}\right)\right]$ (θ, QIV) $\cos\theta = \frac{4}{5}$



$\frac{25-9}{\sqrt{16}}$