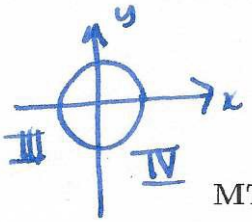


1. $\cos^2 t + \sin^2 t = 1$

$\cos^2 t = 1 - \sin^2 t$

$\cos t = \pm\sqrt{1-\sin^2 t}$

$\cos t = -\sqrt{1-\sin^2 t}$

MTH 130 Precalculus, Classwork 12 13 **Fall 2014**

(1) Write $\cos(t)$ in terms of $\sin(t)$ in Quadrant III.

(2) Write $\tan(t)$ in terms of $\cos(t)$ in Quadrant IV.

2. $\frac{\cos^2 t + \sin^2 t = 1}{\cos^2 t \quad \cos^2 t}$

$1 + \tan^2 t = \sec^2 t$

(3) If $\cos(t) = \frac{4}{5}$ and t is in Quadrant III, find the values of the other trig functions at t.

$\tan^2 t = \sec^2 t - 1$

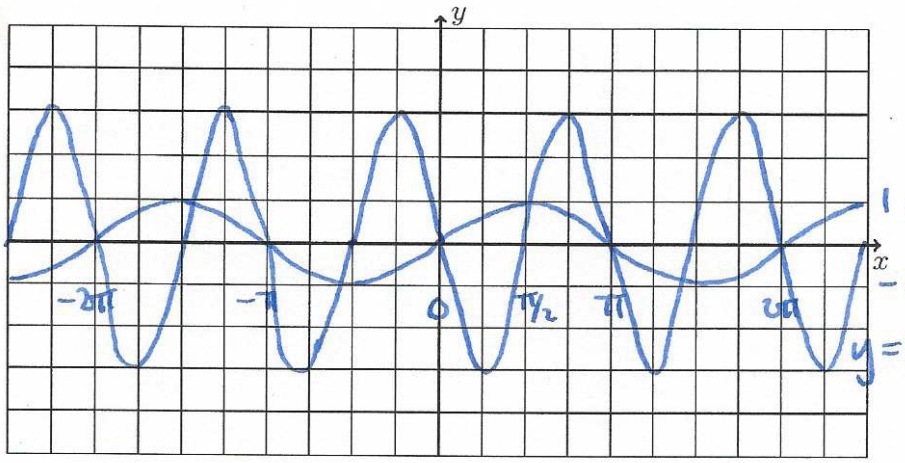
$\tan t = \pm\sqrt{\sec^2 t - 1}$

$\tan t = -\sqrt{\sec^2 t - 1}$

(4) Is $f(x) = x\sin^3(x)$ even, odd, or neither?

(5) Draw careful graphs of $y = \sin(x)$ and $y = 3\sin(2x + \pi)$.

$3\sin\left(2\left(x-\left(-\frac{\pi}{2}\right)\right)\right)$



(6) Find the amplitude, frequency and phase shift for $y = -3\cos(2x + \pi/4)$, and draw a careful graph of the function.

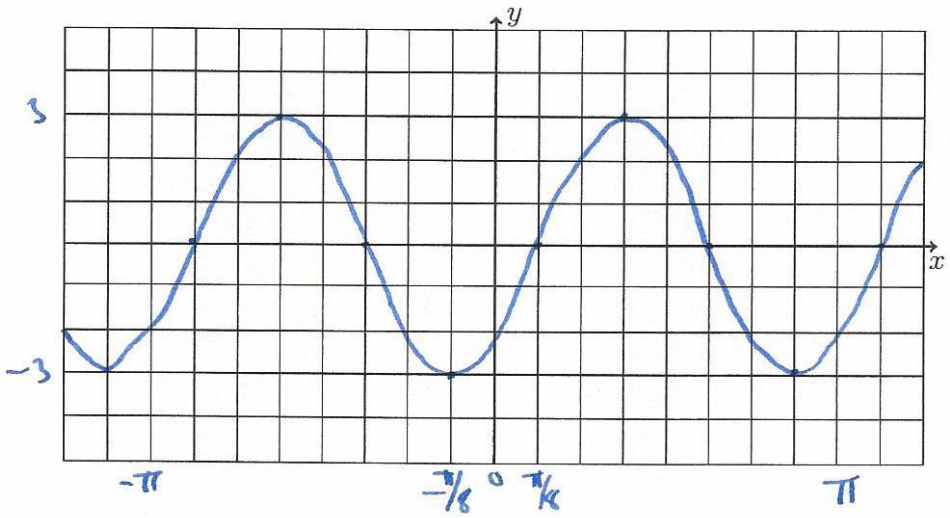
amplitude = 3

frequency period $\frac{2\pi}{2} = \pi$.

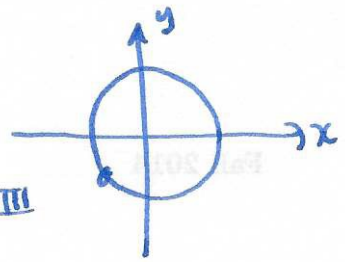
frequency = 2.

$-3\cos\left(2\left(x+\frac{\pi}{8}\right)\right)$

phase shift $-\frac{\pi}{8}$.



Q3



$x^2 + y^2 = 1$

$\cos^2 t + \sin^2 t = 1$

$\left(\frac{-4}{5}\right)^2 + y^2 = 1$

$y^2 = 1 - \frac{16}{25} = \frac{25-16}{25} = \frac{9}{25}$

$y = \pm \frac{3}{5}$ $\quad y = -\frac{3}{5}$

$\cos t = -\frac{4}{5}$

$\sin t = -\frac{3}{5}$

$\sec t = \frac{1}{\cos t} = -\frac{5}{4}$

$\tan t = \frac{\sin t}{\cos t} = \frac{-3/5}{-4/5} = \frac{3}{4}$

$\csc t = \frac{1}{\sin t} = -\frac{5}{3}$

$\cot(t) = \frac{1}{\tan t} = \frac{4}{3}$.

Q4

$f(-x) = -x \sin^3(-x)$ $\quad \sin(-x) = -\sin(x)$

$= -x\left(-\sin(x)\right)^3$.

$= -x \cdot -\sin^3(x) = x\sin^3(x)$ even.