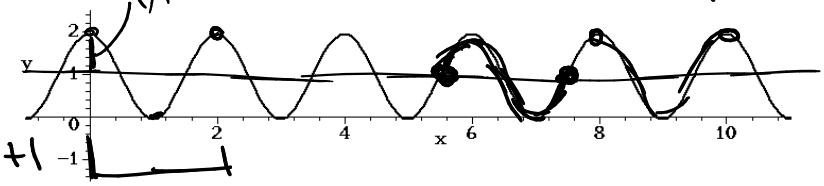
Math 112

Q's

The figure



$y = 1$ shows the graph of the

$y = 1 \cdot \cos(\pi x + 0) + 1$

period $= 2 = \frac{2\pi}{\omega}$ So $\omega = \pi$

Ans

function

$f(x) =$ $\cos(\pi x) + 1$

$A\cos(\omega x + \phi) + B$

freq — phase

$A\sin(\omega x + \phi) + B$

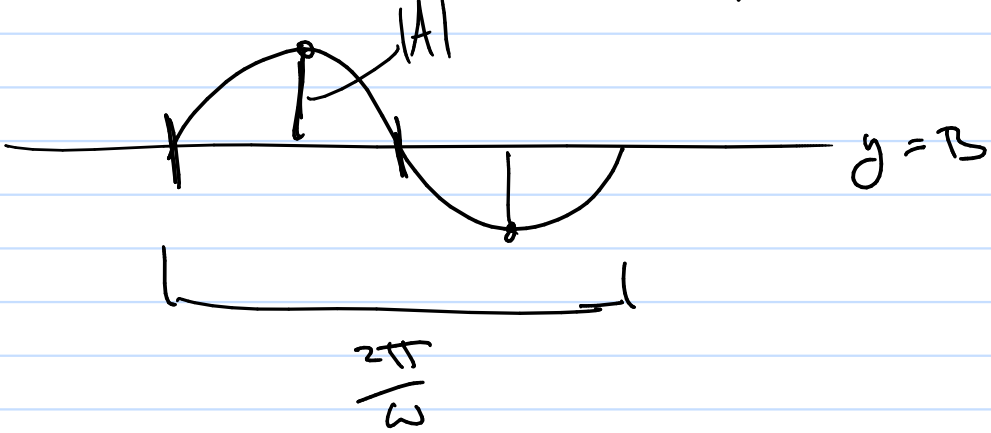
amplitude $= |A|$

phase shift $= -\frac{\phi}{\omega}$

period $= \frac{2\pi}{\omega}$

vertical shift $= B$

(*) $1 \longleftrightarrow 1$ horz. shift = phase shift $= -\frac{\phi}{\omega}$



$A(t) = A\cos(\omega t + \phi) + B$ $\cos(9t+6)$

6 Suppose $y = -4\cos(9t+6) + 3$. In your answers, enter *pi* for π.

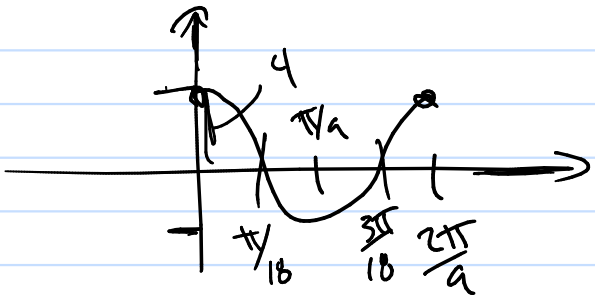
What is the phase shift? ____

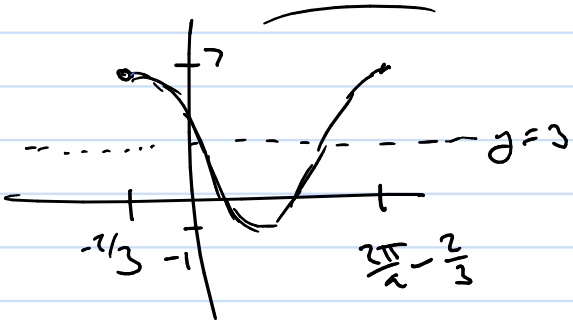
$\cos(9(t - \frac{-2}{3}))$

Amplitude $= |A| = 4$ phase $= 6$

freq $= \omega = 9$ phase shift $= -\frac{6}{\omega} = -\frac{2}{3}$

period $= \frac{2\pi}{\omega} = \frac{2\pi}{9}$ vertical shift $= 3$





$\sec x = \frac{1}{\cos x}$ $\csc x = \frac{1}{\sin x}$

Domain: $x \neq \frac{\pi}{2} + n\pi$ $n \in \mathbb{Z}$

(vertical asym)

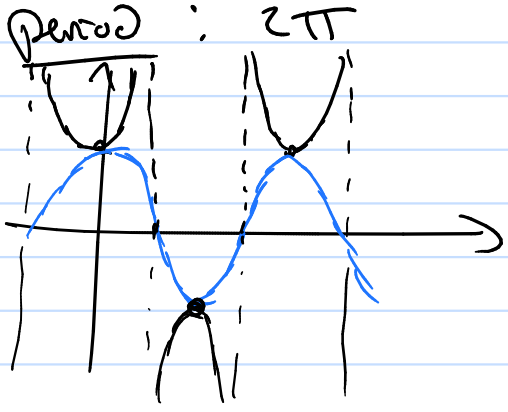
Range: $(-\infty, -1] \cup [1, \infty)$

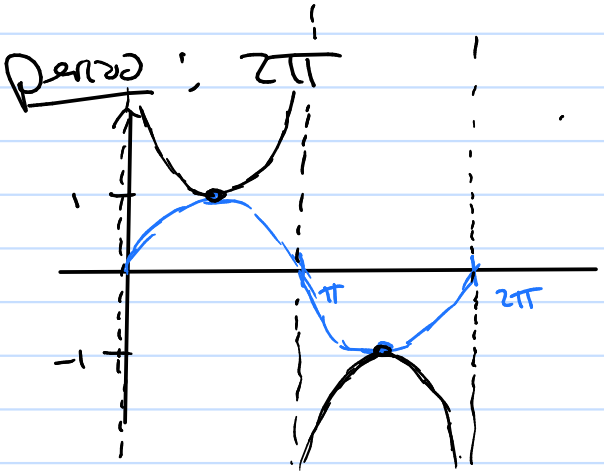
Domain: $x \neq 0 + n\pi$

$x \neq n\pi$

(vertical asym)

Range: $(-\infty, -1] \cup [1, \infty)$





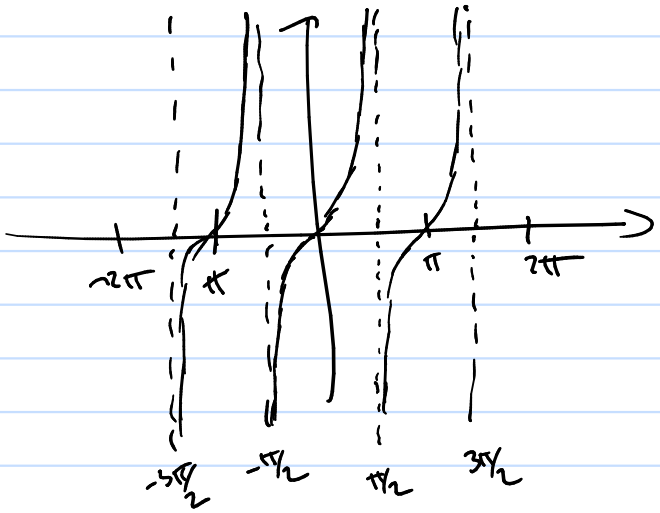
$\tan x = \frac{\sin x}{\cos x}$

Domain: $x \neq \pi/2 + n\pi$

vert. asym.

Range: $(-\infty, \infty)$

Period: π



$\cot x = \frac{\cos x}{\sin x}$

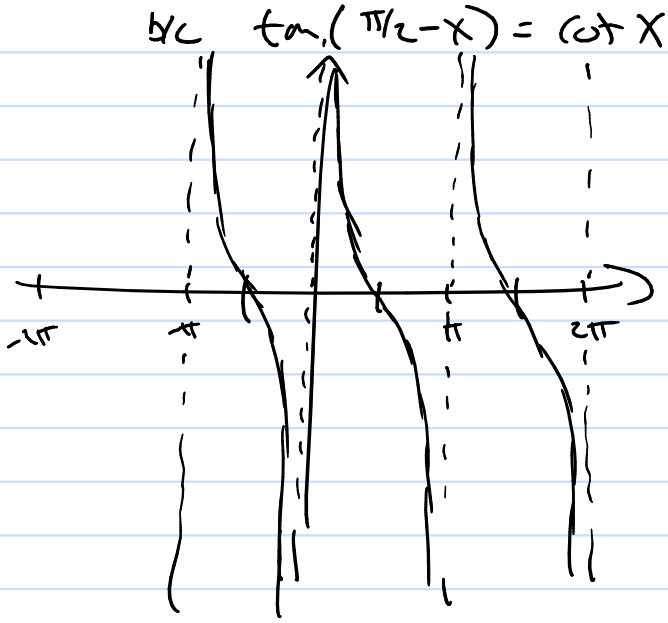
Domain: $x \neq n\pi$

vertical asym

Range: $(-\infty, \infty)$

Period: π

b/c $\tan(\pi/2 - x) = \cot x$



What should we all "know" now?!

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1. tables for angles and $\cos\theta, \sin\theta$
2. All identities
3. Unit circle w/ $\sin\theta$, $\cos\theta$, $\tan\theta$, $\cot\theta$, $\sec\theta$, $\csc\theta$,
4. Graphs