Graphing Trig Functions

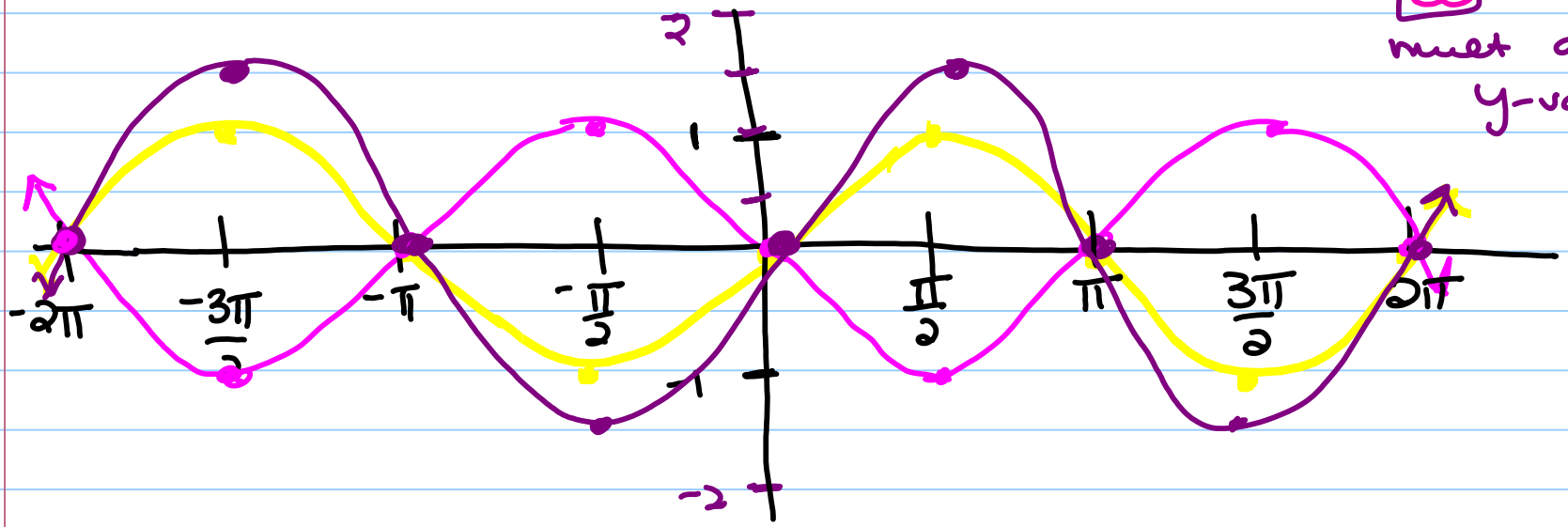
Note Title 10/20/2009

Objectives: To 1) identify the amplitude, period, & phase shift for a trig function & 2) use parent functions & "shifting" techniques to graph trig functions.

Ex 1: $f(x) = -\sin x$

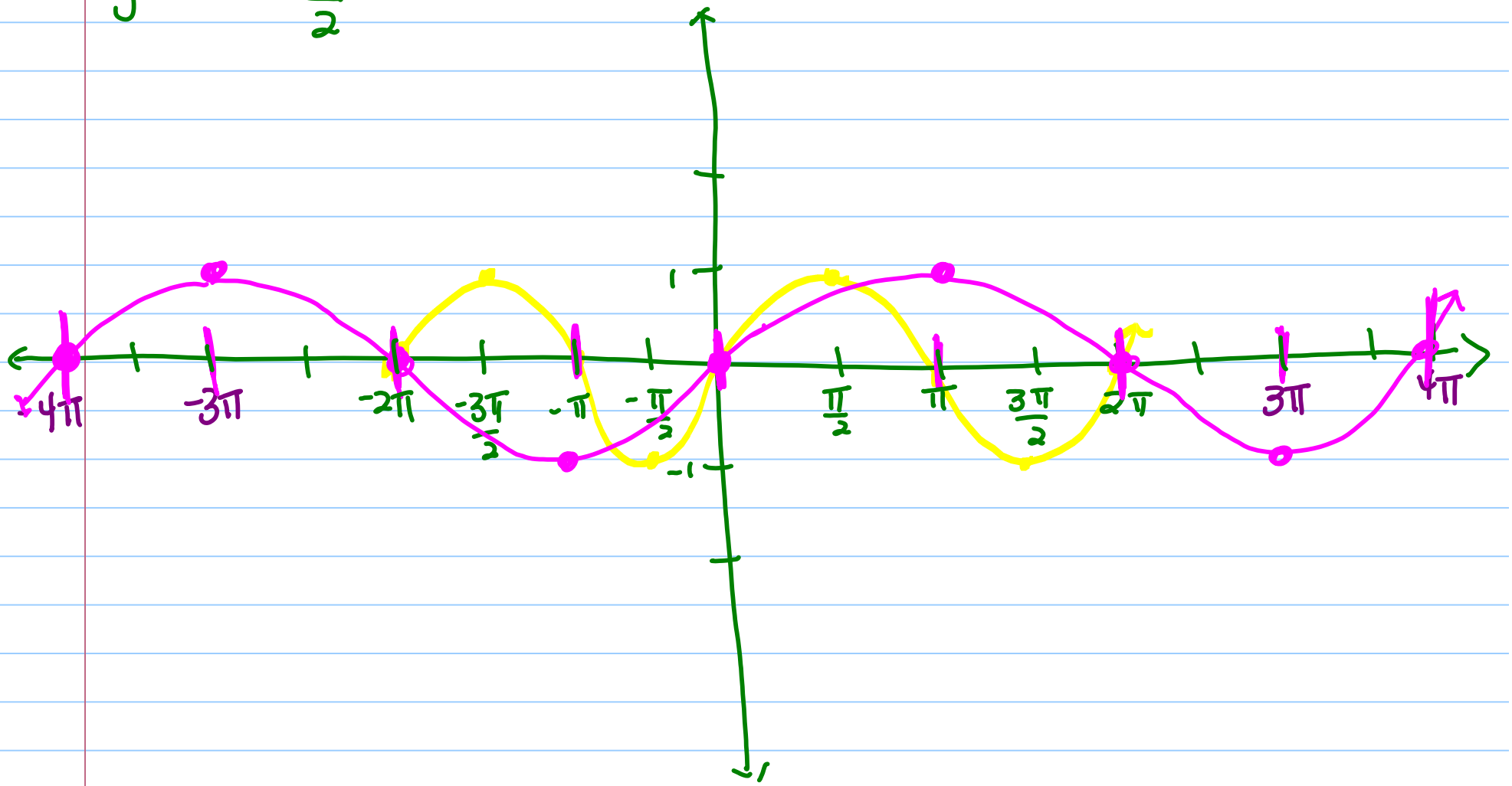
Ex 2: $f(x) = \frac{3}{2}\sin x$

must all y-values!



Only sine + cosine have amplitude !

$y = \sin \frac{x}{2}$



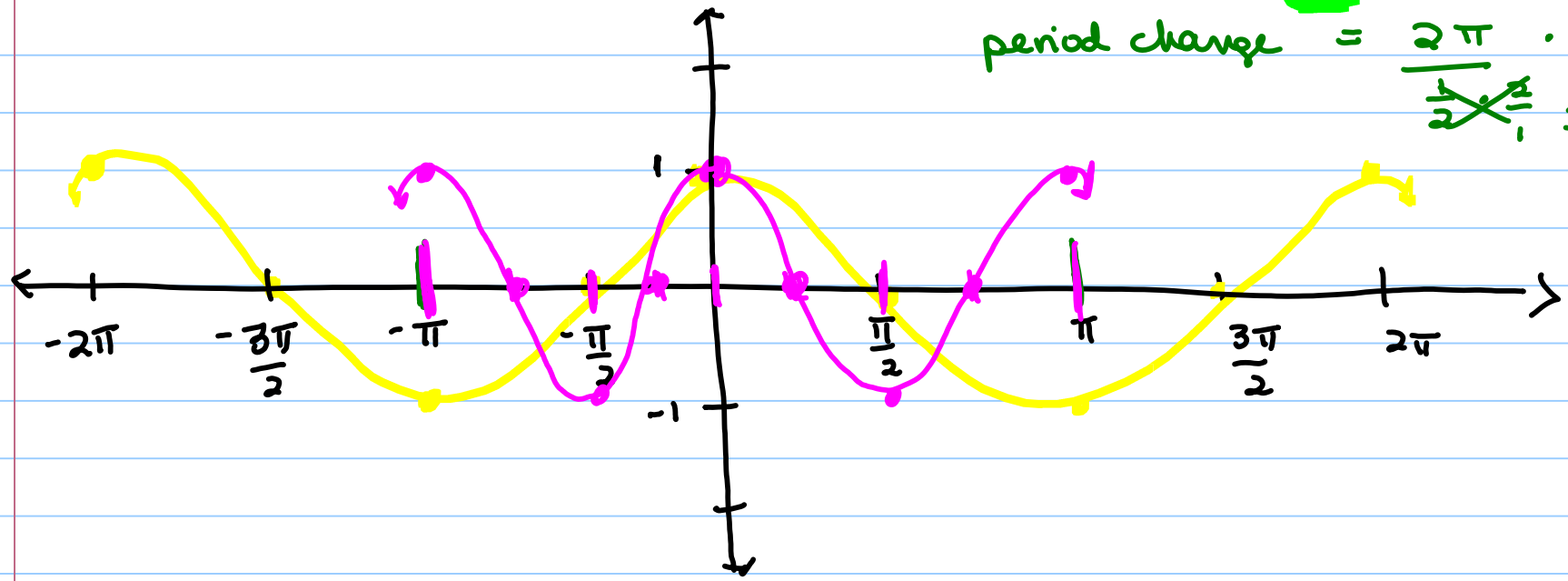
period change $= \dfrac{\text{normal period}}{k} = \dfrac{2\pi}{2} = \pi$

Period Change

Ex3 $f(\theta) = \cos 2\theta$ ($k = 2$)

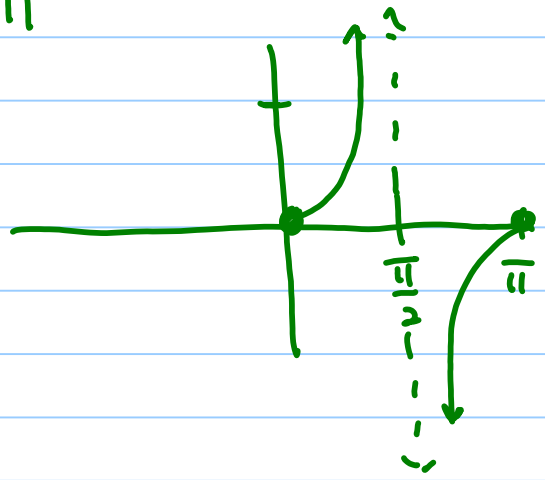
$g(x) = \sin \dfrac{x}{2}$

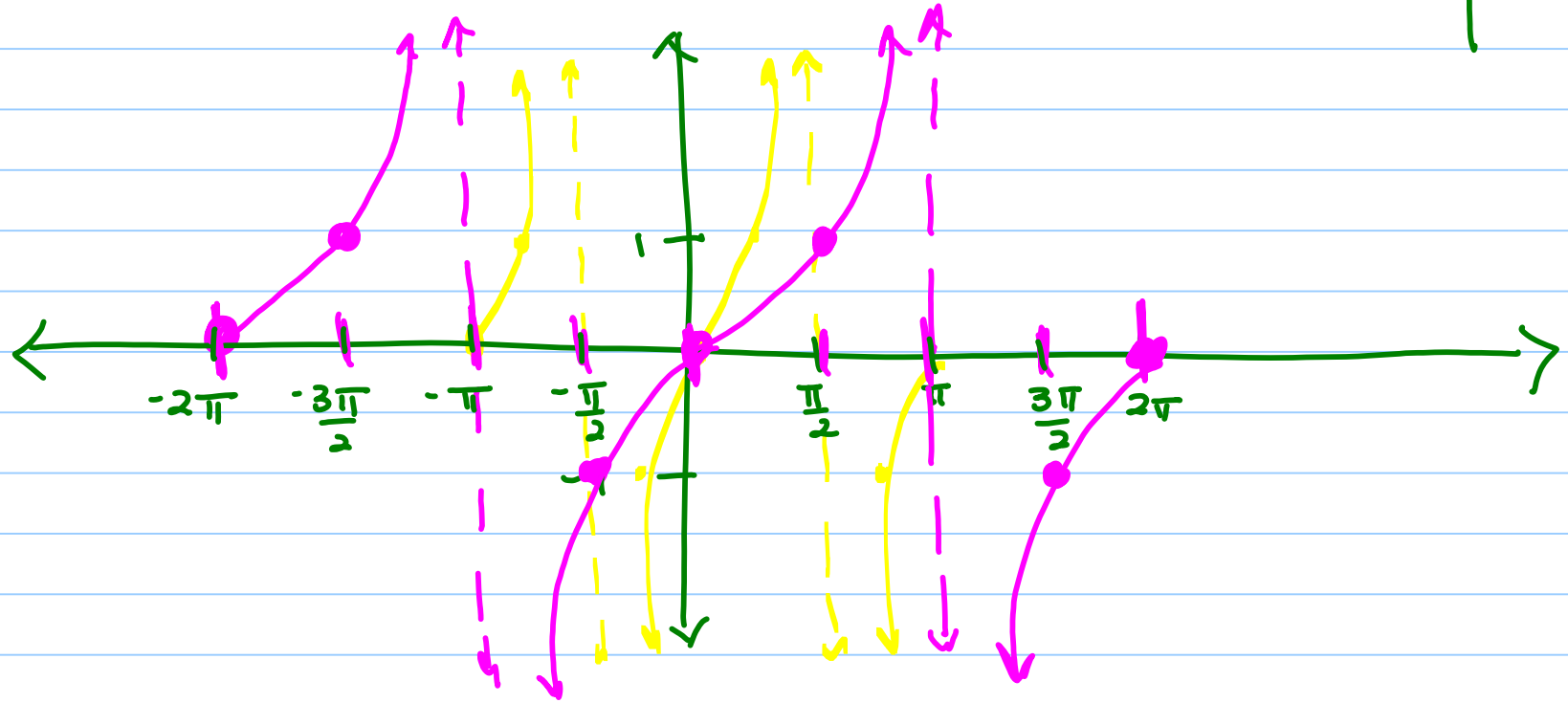
period change $= \dfrac{2\pi}{\frac{1}{2}} \cdot 2 = 4\pi$



$$g(x) = \sin \frac{1x}{2}$$

$$y = \tan \frac{1}{2}x \qquad P = \frac{\pi}{\frac{1}{2}} = 2\pi$$





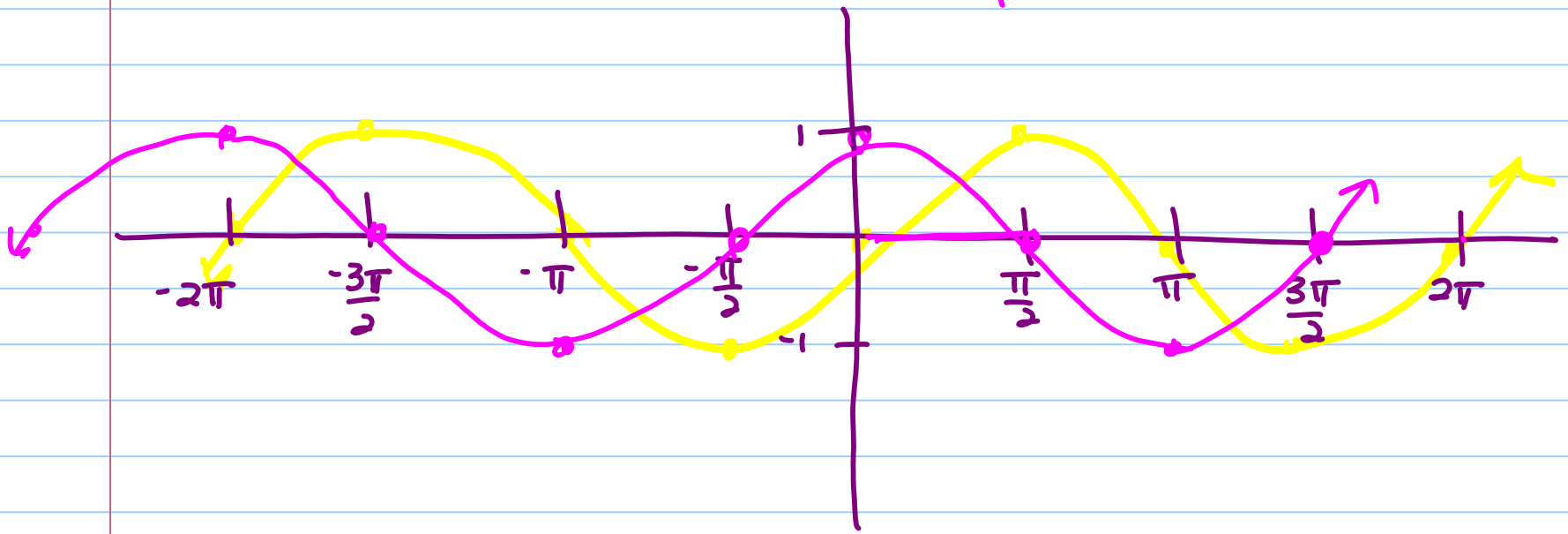
Phase Shift

$y = A\,\text{trig}(Kx + C)$ (amp: A; period: K)

phsh: $\frac{-C}{K}$

$y = \sin\left(1x + \frac{\pi}{2}\right)$ (K = 1, C = $\frac{\pi}{2}$)

left $\frac{\pi}{2}$



$$y = -3\cos\left(2x - \pi\right) + 2$$

mult y's $\times 3$

$-$ over x

2: k, $p = \frac{2\pi}{2} = \pi$

π: c, $\frac{\pi}{2}$ right

$+2 \rightarrow$ up 2