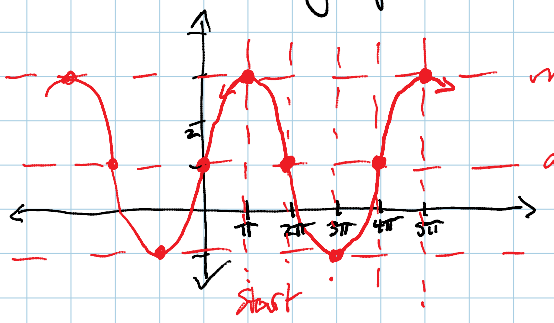
6.6a Graphing $y=a\sin b(x-c)+d$ and $y=a\cos b(x-c)+d$

Wednesday, November 27, 2013
10:14 AM

Draw the graph of $y=2\cos\frac{1}{2}(x-\pi)+1$

vertical displacement



axis: $y=1$
max: $y=1+2=3$ (amplitude is $|a|$)
min: $y=1-2=-1$
period: $\frac{2\pi}{\frac{1}{2}}$ or $2(2\pi)=4\pi$ — $f(\frac{1}{2}x)$
divisions: $4\pi/4=\pi$
phase shift: π

Draw the graph of $y=-\sin(2x+\pi/2)+3$

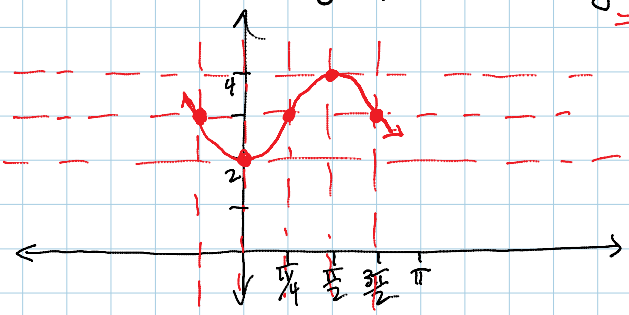
$=-\sin 2(x+\pi/4)+3$

factor first!

starts at 0 & goes down

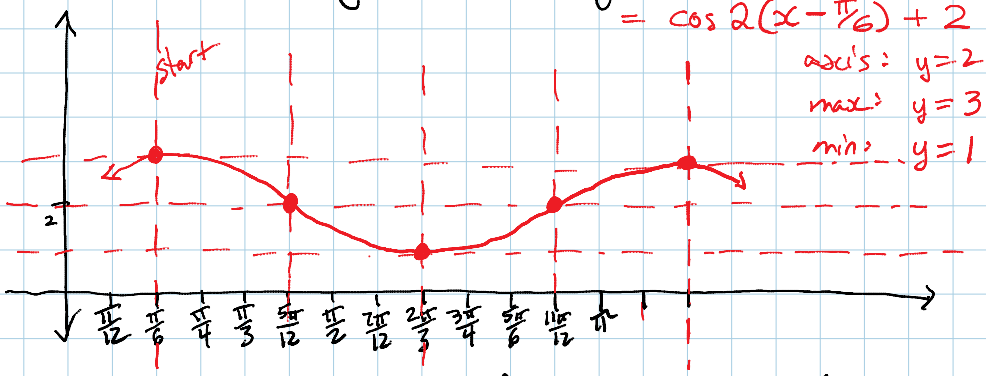
axis: $y=3$
max: $y=4$
min: $y=2$

period: π
div: $\pi/4$
phase shift: $-\pi/4$



Draw the graph of $y=\cos(2x-\pi/3)+2$

$=\cos 2(x-\pi/6)+2$



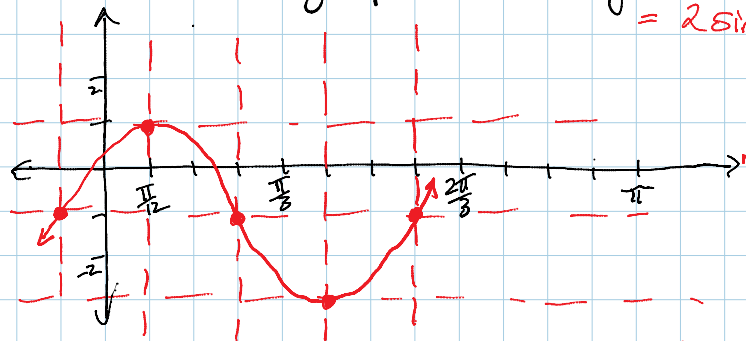
axis: $y=2$
max: $y=3$
min: $y=1$

period: π
div: $\pi/4$
phase shift: $\pi/6$

common denominator $\frac{\pi}{12}$

Draw the graph of $y=2\sin(3x+\pi/4)-1$

$=2\sin 3(x+\pi/12)-1$



axis: $y=-1$
max: $y=1$
min: $y=-3$

period: $2\pi/3$
div: $\frac{2\pi}{12}=\pi/6$
phase shift: $-\pi/12$