

518 20. $y = 4\sin(\frac{1}{4}x + \frac{\pi}{8})$

amp = 4

per = $\frac{2\pi}{1/4} = 8\pi$

p.s. = $-\frac{c}{b} = \frac{-\pi/8}{1/4} = -\frac{\pi}{2}$

22. $y = -3\cos(4x - \pi) + 2$

amp = 3

per = $\frac{2\pi}{4} = \frac{\pi}{2}$

p.s. = $-\frac{c}{b} = \frac{\pi}{4}$

24. $y = 5 - 2(\frac{\pi}{2}x + \frac{\pi}{2})$

amp = 2

per = $\frac{2\pi}{\pi/2} = 4$

p.s. = $-\frac{c}{b} = \frac{-\pi/2}{\pi/2} = -1$

- Do the warmup at the top of our notes
- Use graph paper for all graphs
- Test is Friday (no calculator)

Dec 23-8:49 AM

$y = 2\sin x$

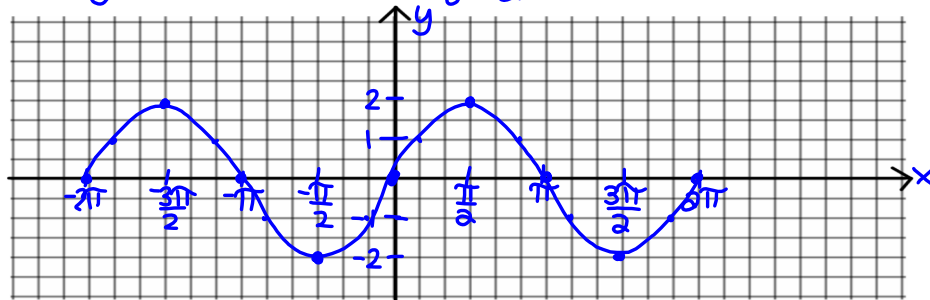
amp = 2

range $\rightarrow [-2, 2]$

per = 2π

freq = $\frac{1}{2\pi}$

xsc1 = $\frac{2\pi}{4} = \frac{\pi}{2}$



Jan 9-3:54 PM

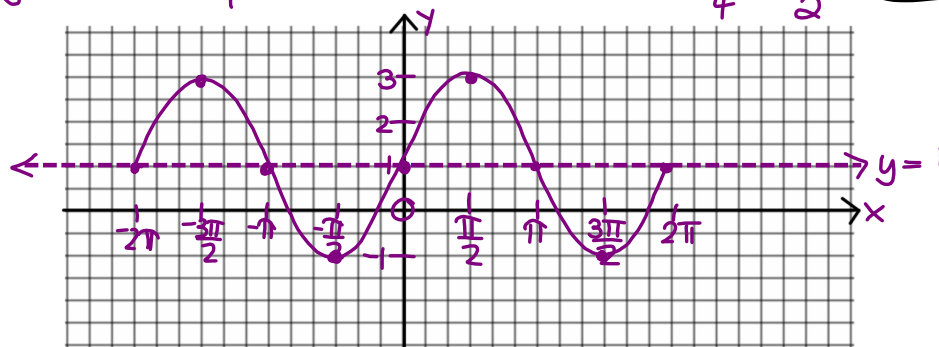
$$y = 2\sin x + 1$$

amp 2
VS: 1

range $[-1, 3]$
per: 2π

freq $\frac{1}{2\pi}$
xsc1: $\frac{2\pi}{4} = \frac{\pi}{2}$

$2(0, 1, 0, -1, 0) + 1$
 $(1, 3, 1, -1, 1)$



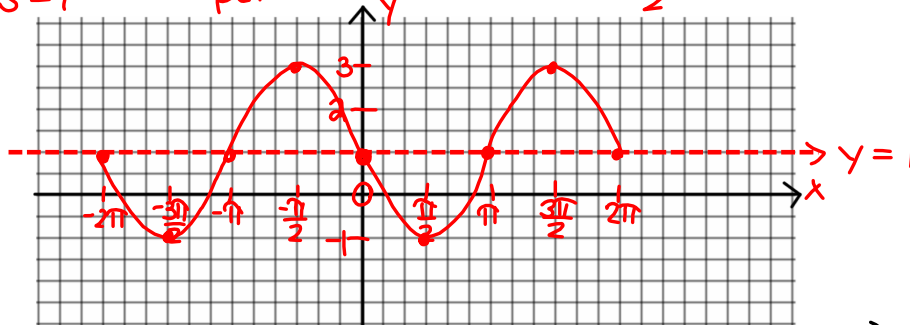
Jan 9-3:54 PM

$$y = -2\sin x + 1$$

amp = 2
VS = 1

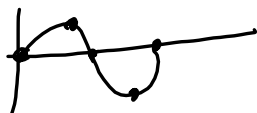
range $[-1, 3]$
per 2π

freq $\frac{1}{2\pi}$
xsc1 $\frac{\pi}{2}$



$$y = \sin x$$

+



$$-2(0, 1, 0, -1, 0) + 1$$

$$(1, -1, 1, 3, 1)$$

Jan 9-3:54 PM

Warm-up: Given $y = 1.5 \cos\left(\frac{\pi}{6}x + \frac{\pi}{3}\right) - 3$ find all of the following

Amp = 1.5 Period = $\frac{2\pi}{\pi/6} = \frac{2\pi}{1} \cdot \frac{6}{\pi} = 12$ vs = -3

Range = $[-4.5, -1.5]$ Frequency = $\frac{1}{12}$ ps = $\frac{-c}{b} = \frac{-\pi/3}{\pi/6} = -\frac{\pi}{3} \cdot \frac{6}{\pi} = -2$

$-3 \xrightarrow{+1.5} -1.5$
 $-3 \xrightarrow{-1.5} -4.5$

Jan 17-4:26 PM

For all graphs, graph in the interval $[-2\pi, 2\pi]$

1. Graph
- $y = 3\sin(1/2x) - 1$

Amp = 3

VS = -1

Range = $[-4, 2]$

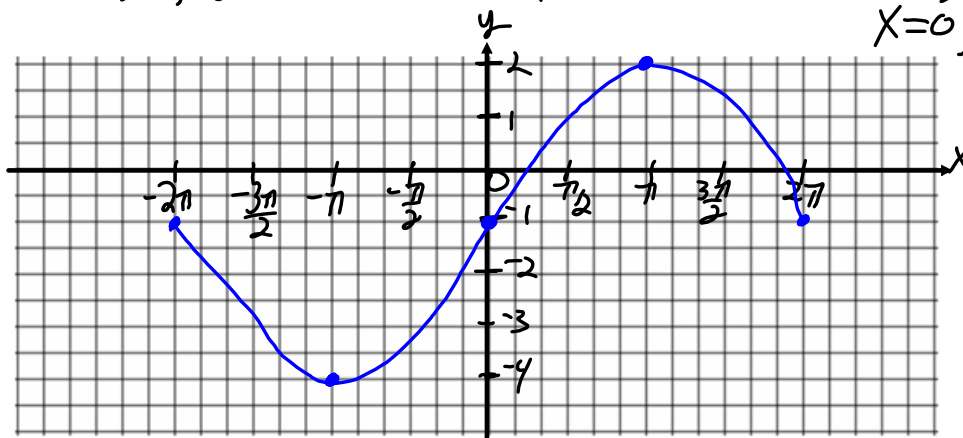
Period = $\frac{2\pi}{b} = \frac{2\pi}{1/2} = 2\pi \cdot \frac{2}{1} = 4\pi$

Frequency = $\frac{1}{4\pi}$

x scl = $\frac{b\pi}{4} = \frac{1\pi}{4} = \pi$

$y = \sin x$ 

$3(0, 1, 0, -1, 0) - 1$
 $= (-1, 2, -1, -4, -1)$
 $X=0, + \text{x scl}$



Jan 17-4:26 PM

2. Graph $y = -\cos(1/2x) + 1$

Amp = $|-1| = 1$

VS = 1

Range =

$[0, 2]$

Period = $2\pi / \frac{1}{2} = 2\pi \cdot 2 = 4\pi$

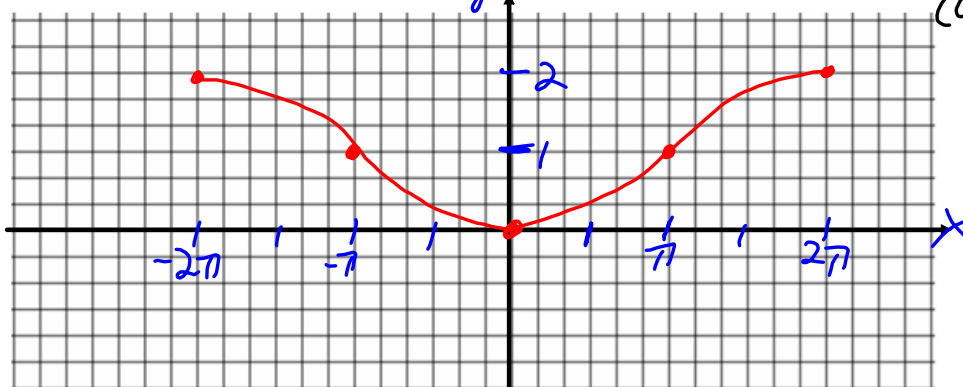
Frequency = $\frac{b}{2\pi} = \frac{1/2}{2\pi} = \frac{1}{2} \cdot \frac{1}{2\pi} = \frac{1}{4\pi}$

xsc1 = $\frac{4\pi}{4} = \pi$

$$y = \cos x$$

$$-1(1, 0, -1, 0, 1) + 1$$

$$(0, 1, 2, 1, 0)$$



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3. Graph $y = 2\cos(2x) + 1$

Amp = 2

VS = 1

Range =

$[-1, 3]$

Period = $\frac{2\pi}{b} = \frac{2\pi}{2} = \pi$

Frequency = $\frac{1}{\pi}$

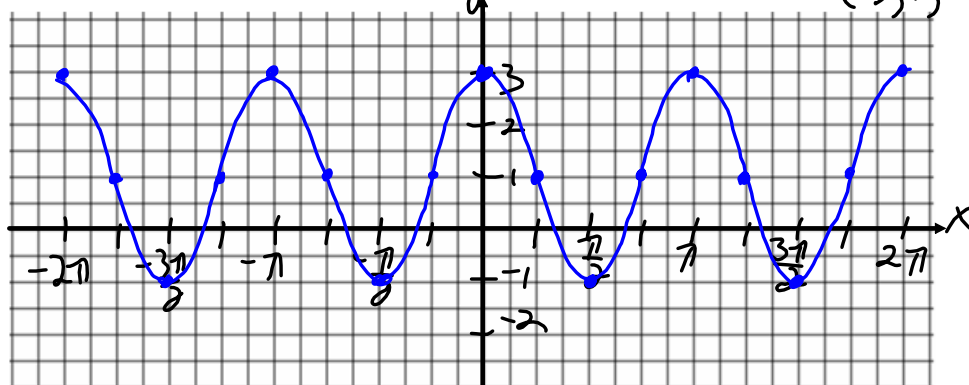
xsc1 = $\frac{\pi}{4} = \frac{\pi}{4}$

$$y = \cos x$$

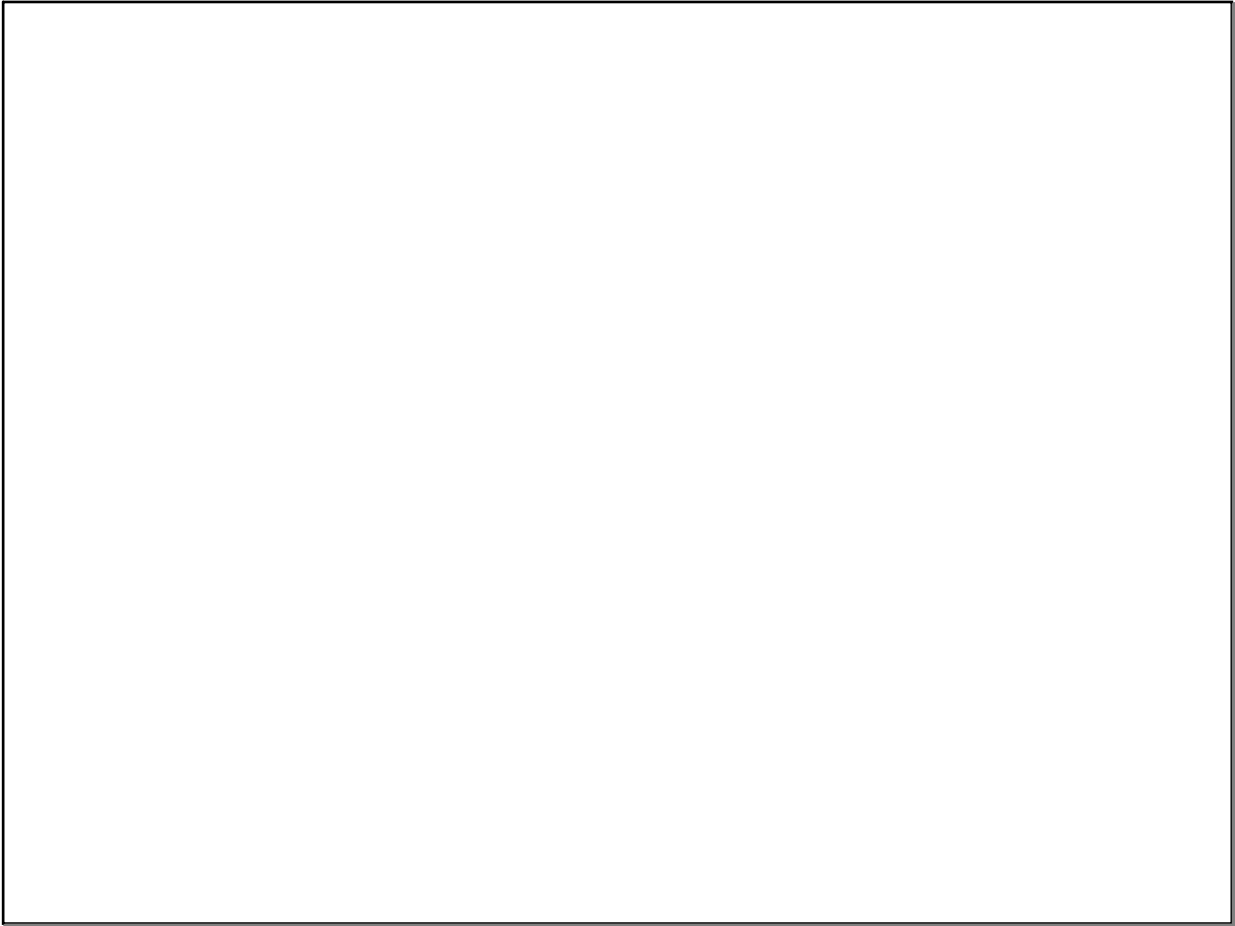
$$A(1, 0, -1, 0, 1) + 2$$

$$2(1, 0, -1, 0, 1) + 1$$

$$= (3, 1, -1, 1, 3)$$



Jan 17-4:27 PM



Jan 14-10:06 PM