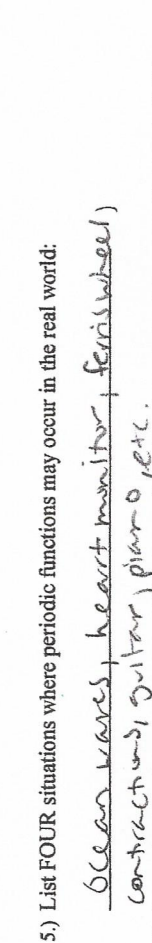
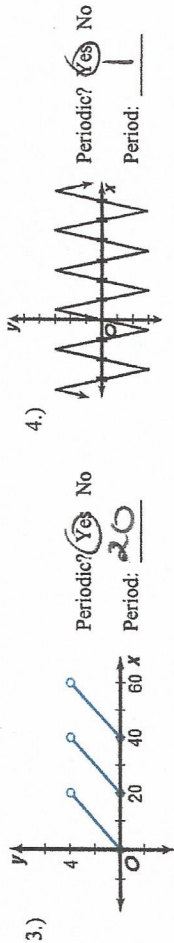
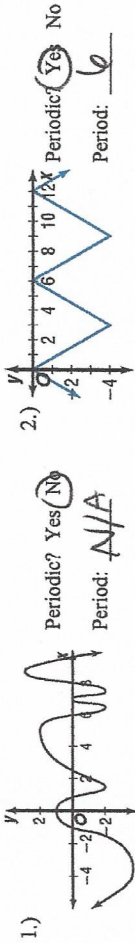


I. Determine if each graph is periodic. If so, state the period.



4.) Periodic? Yes ☒ No ☐ Period: 20

5.) List FOUR situations where periodic functions may occur in the real world:

ocean waves, heart monitor, ferris wheel, contract 20, guitar, piano etc.

II. State the amplitude, period, p. shift, and v. shift. Graph each function ON GRAPH PAPER. Make sure on your graphs, you put all the correct labels for each axis.

Function	Amplitude	Period	Phase Shift	Vertical Shift
6.) $y = \sin(x) + 2$	1	2π	none	up 2
7.) $y = \sin(2x)$	1	π	none	none
8.) $y = \sin\left(x - \frac{\pi}{2}\right)$	1	2π	right $\frac{\pi}{2}$	none
9.) $y = 4\sin(x)$	4	2π	none	none
10.) $y = \sin\left(\frac{1}{4}x\right) - 3$	1	8π	none	down 3
11.) $y = 2\cos(x)$	2	2π	none	none
12.) $y = \cos(x) - 2$	1	2π	none	down 2
13.) $y = \cos\left(\frac{1}{2}x\right)$	1	4π	none	none
14.) $y = \cos(x + \pi)$	1	2π	left π	none
15.) $y = 3\cos(x) + 1$	3	2π	none	up 1

