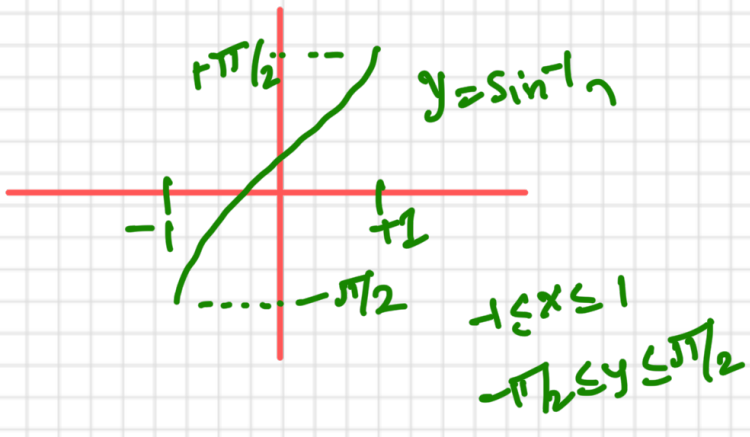
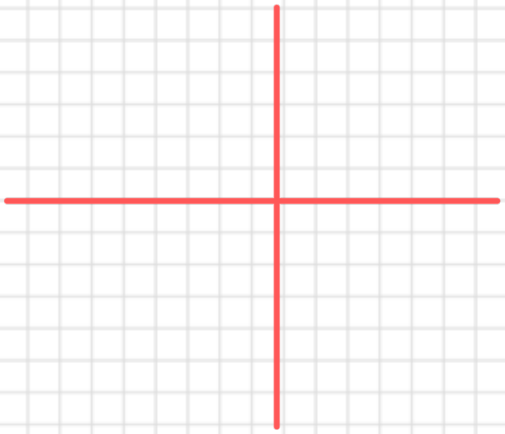
Classwork 04 CPE381 Fall 2024

① $y = \sin^{-1} x$ is given, plot $y = (\sin^{-1} x) + 1$ (2 pts)

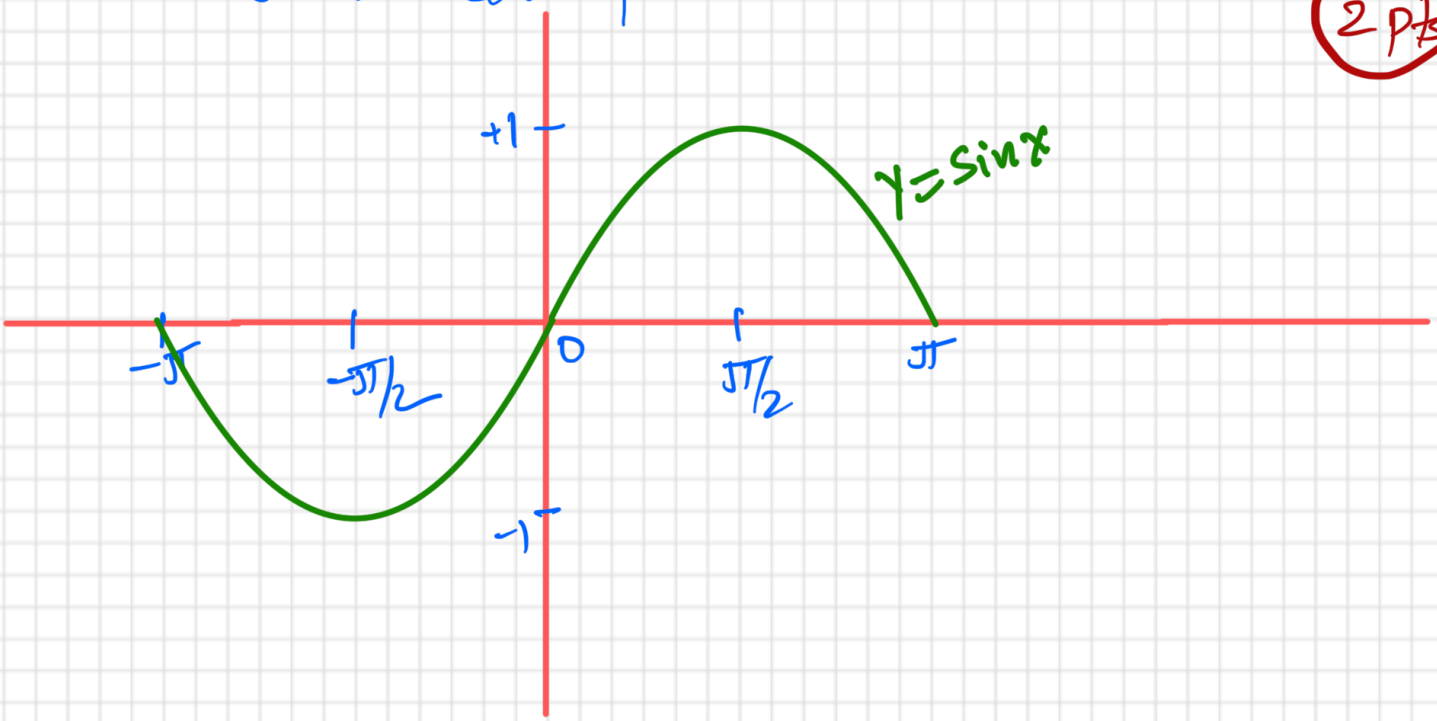


$-1 \le x \le 1$

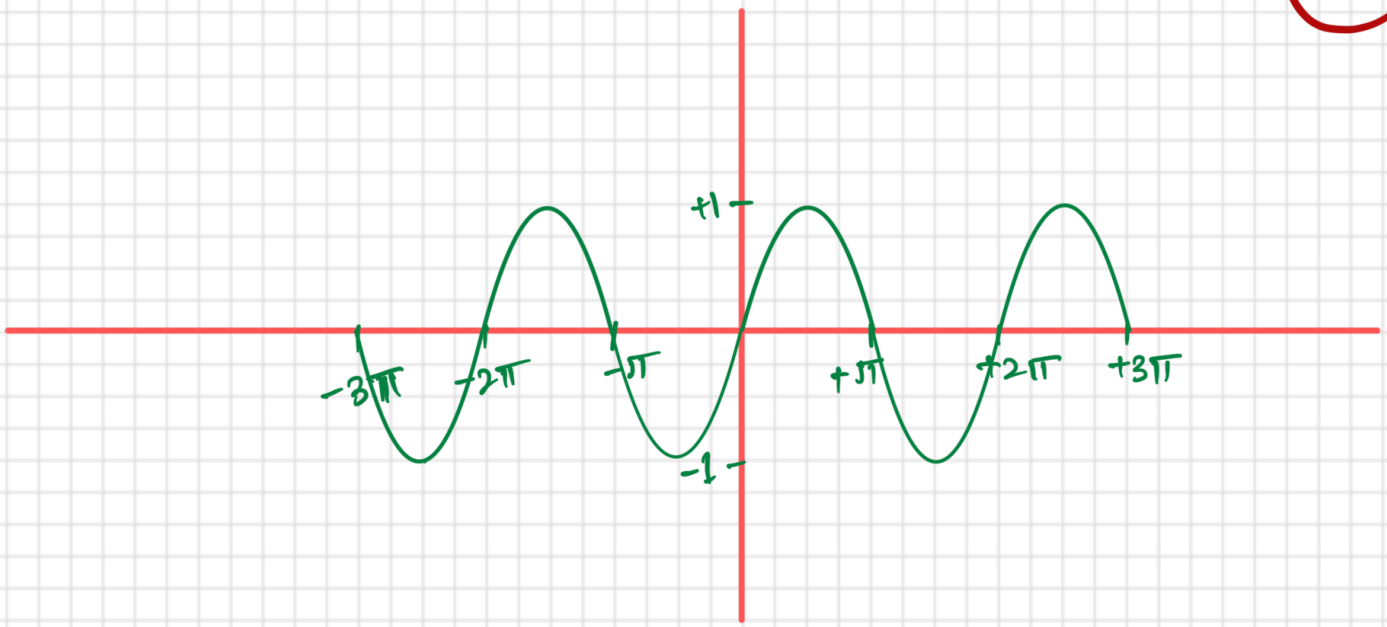
$-\pi/2 \le y \le \pi/2$



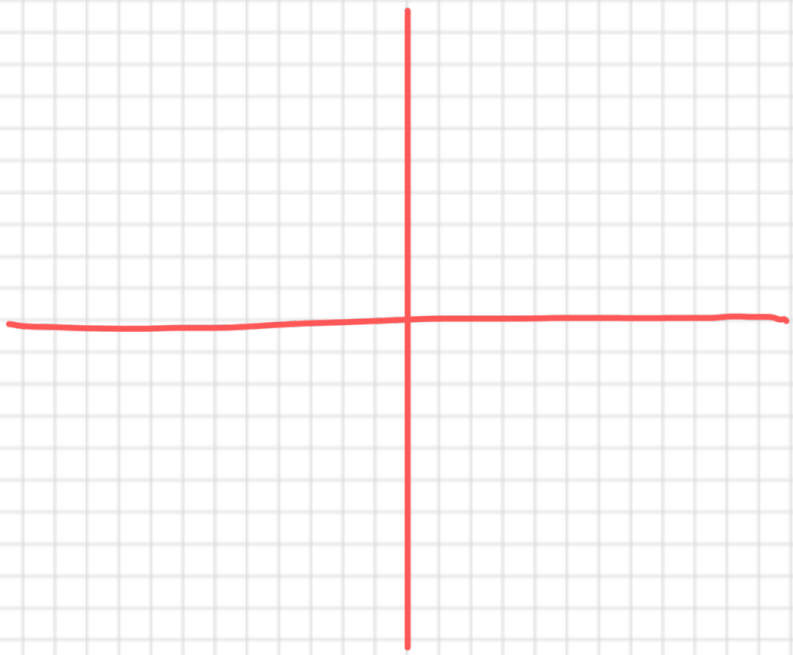
② Plot $y = \frac{1}{2}\sin x$, given the plot of $y = \sin x$, draw on the same plot. (2 pts)



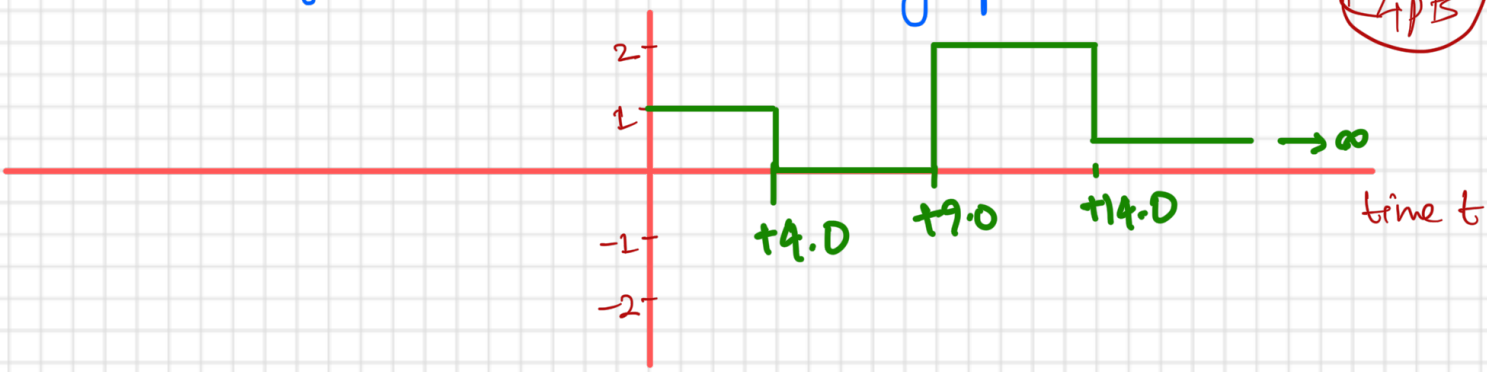
(3) Given $y = \sin x$, sketch $y = |\sin x|$ — 2pts



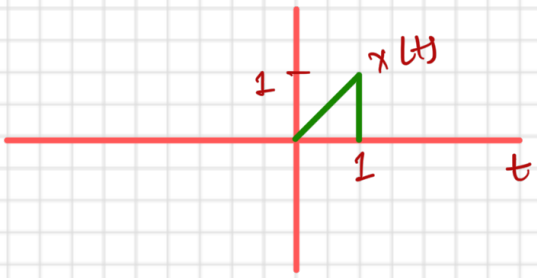
(4) Assuming $u(t)$ is the unit-step function as discussed in the class, sketch $u(t+1)$ — 2pts

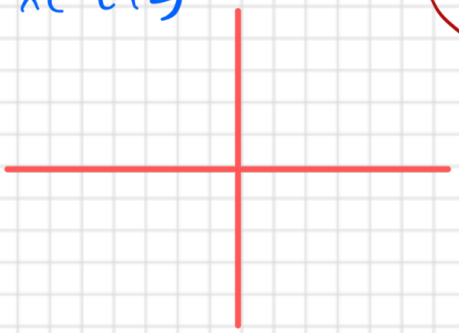


(5) Write down the equation governing the following signal shown in the graph below: — 4pts



(6) Below is $x(t)$, sketch $x(-t+2)$ — 2pts





(7) We have $x(t) = \cos(2\pi t) + \cos(4\pi t)$.

(a) What is the period T_0 of $\cos(2\pi t)$?

(b) What is the period T_1 of $\cos(4\pi t)$?

(c) What is the period T of $x(t)$?

3pts

(8) Calculate the energy of the signal $z(t) = \begin{cases} 1, & 0 \le t \le 10 \\ 0, & \text{otherwise.} \end{cases}$

3pts