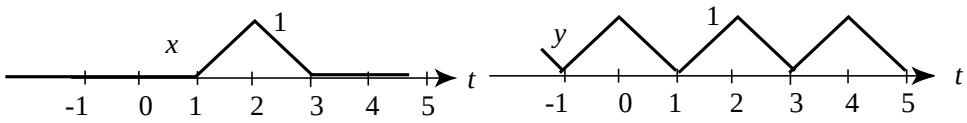

Figure 1: Given x, sketch y.

EECS20N, Quiz 2, 9/27/99

The quiz will count as one homework. It will take 15 minutes. Do your calculations on the sheet and put a box around $\boxed{\text{your answer}}$.

Please print your name here:

Last Name _____ First _____

1. The signal $x : Reals \rightarrow Reals$ is sketched in Figure 1.

   (a) In the space provided carefully sketch the signal y, where

   $$\forall t, \quad y(t) = \sum_{k=-\infty}^{\infty} x(t - 2k).$$

   (b) Suppose t is in seconds. The period of y is $\boxed{2seconds}$

2. The periodic signal $x : Reals \rightarrow Reals$ is given by

   $$\forall t, \quad x(t) = 2\sin(2\pi 60t + \pi/4) + 0.5\sin(2\pi 120t + \pi/8).$$

   (a) The period of x in seconds is $\boxed{1/60}$.

   (b) Suppose x is input to a LTI system whose frequency response is

   $$H(\omega) = \begin{cases} 1, & \text{if } |\omega| \leq 2\pi 80 \text{rads/sec} \\ 0, & \text{otherwise} \end{cases}$$

   Let y be the output signal. Then

   $$\forall t, \quad y(t) = \boxed{2\sin(2\pi 60t + \pi/4)}$$