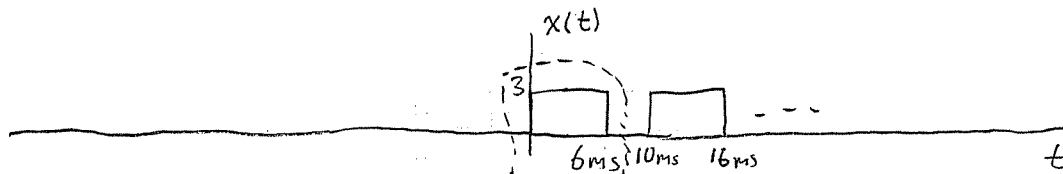


11. Write an expression consisting of a summation of unit step functions to represent a signal that consists of rectangular pulses of width 6 ms and height 3, which occur at a uniform rate of 100 pulses per second with the leading edge of the first pulse occurring at time $t = 0$.

We want something that looks like this:



The basic pulse has this equation:

$$bp(t) = 3[u(t) - u(t - 0.006)]$$

The final signal $x(t)$ is just an infinite number of the basic pulses that are shifted by 10ms and superimposed (added):

$$x(t) = \sum_{n=0}^{\infty} bp(t - 0.01n)$$

$$= 3 \sum_{n=0}^{\infty} [u(t - 0.01n) - u(t - 0.01n - 0.006)]$$

