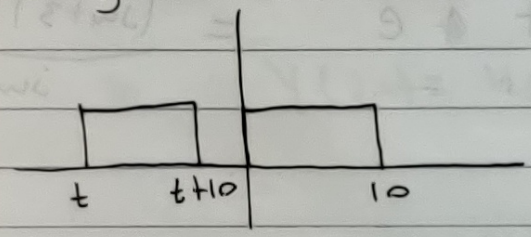
A.1) $x(t) = u(t) - u(t-10)$

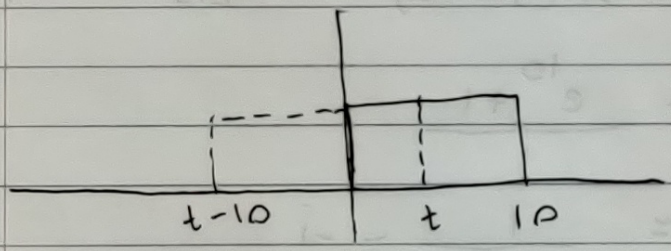
$z(t) = x(t) * x(t)$

Region 1: $t < 0$



$y(t) = 0$

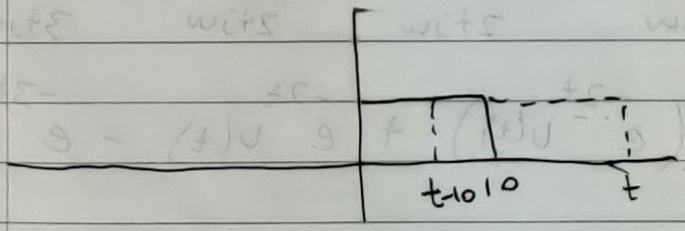
Region 2: $0 < t < 10$



$$y(t) = \int_0^t (1)(1)\,d\tau$$

$$y(t) = t$$

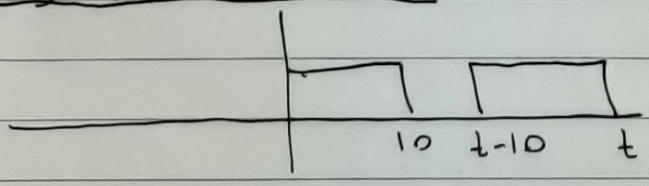
Region 3: $10 < t < 20$



$$y(t) \int_{t-10}^{10} (1)(1)\,d\tau$$

$$y(t) = 20 - t$$

Region 4: $t > 20$



$y(t) = 0$

$z(t) = x(t) * x(t)$