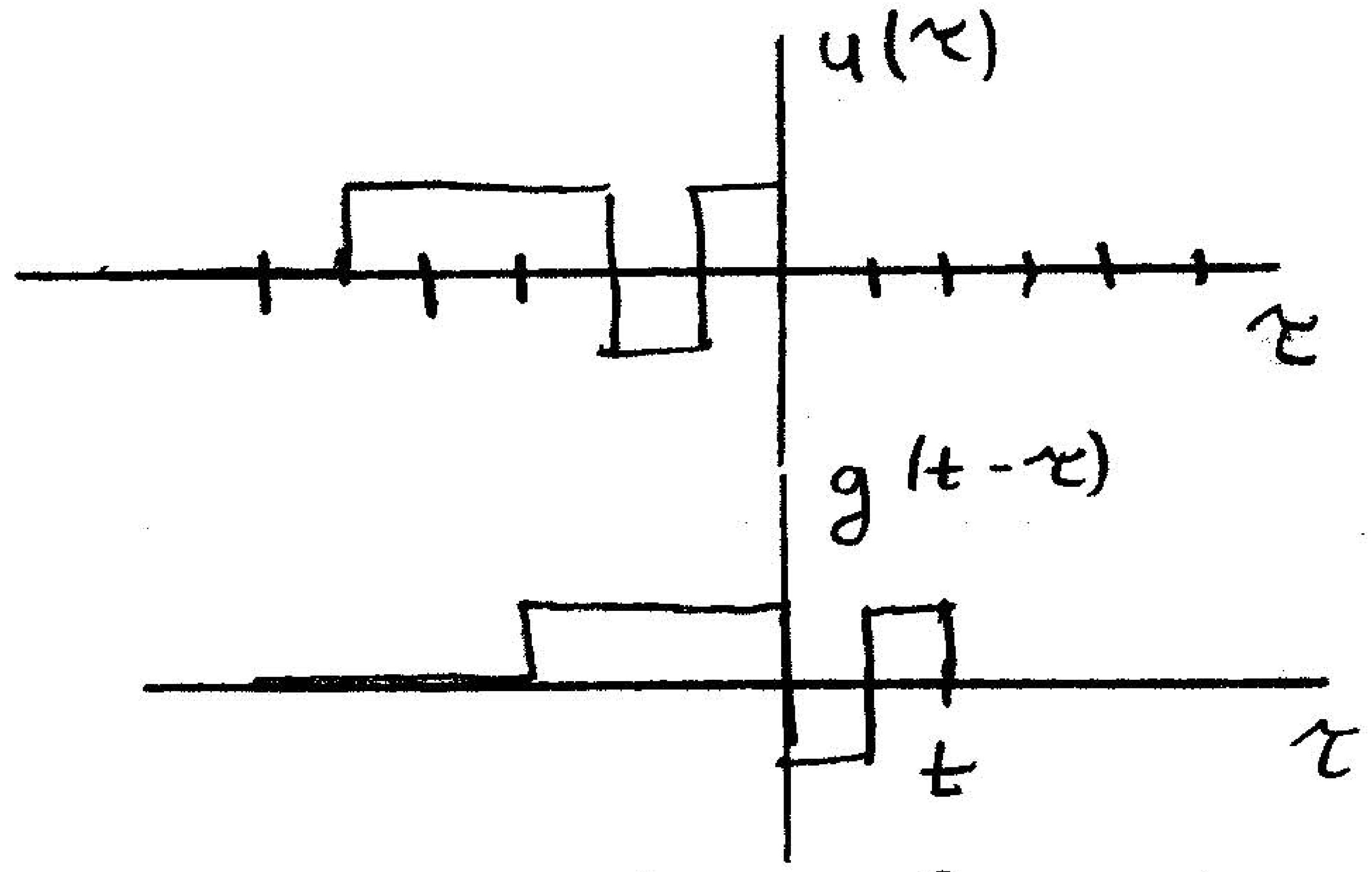
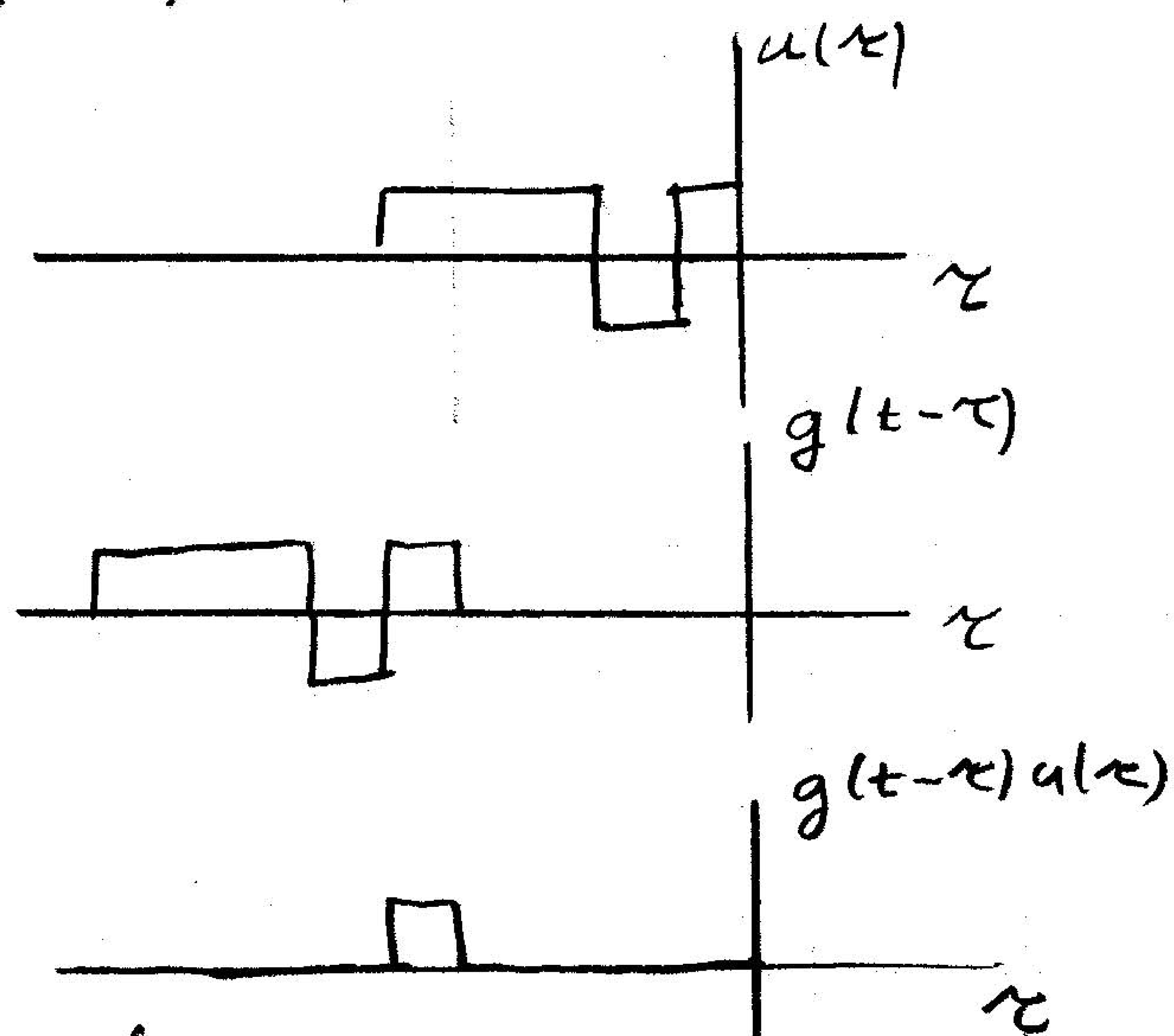
1. Because $g(t)$ & $u(t)$ are piecewise constant, $y(t)$ will be continuous and piecewise linear. We can find $y(t)$ at the "corners" by evaluating at $t=$ integer, since the corners of $g(t)$ & $u(t)$ occur at the integers.

So do flip & slide:



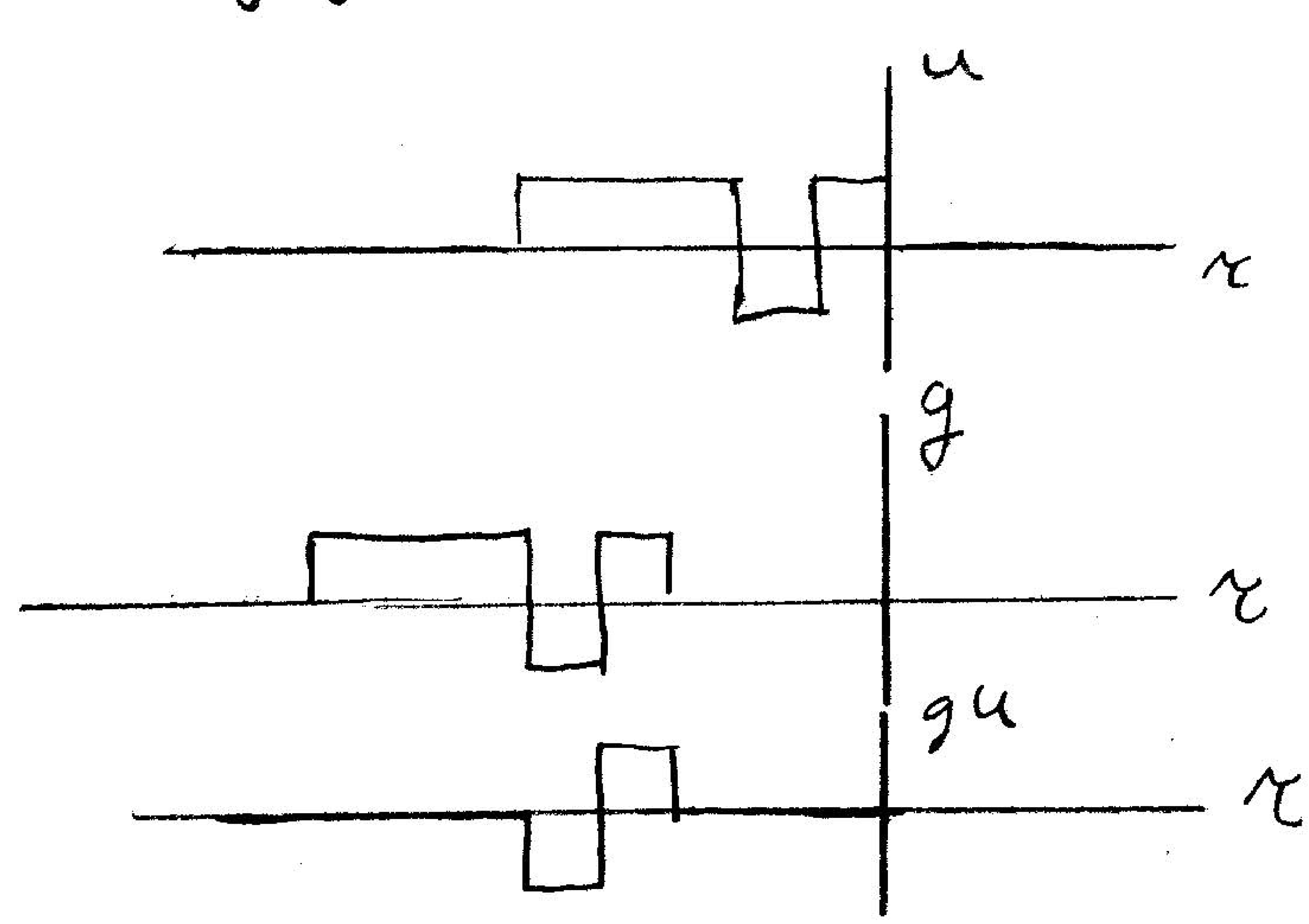
There is no overlap for $t<-5$ or $t>5$. So do $t=-4, -3, -2, \ldots 4$

$t=-4$:



so $y(-4) = \int g(t-\tau)\,u(\tau)\,d\tau = 1$

$t=-3$:

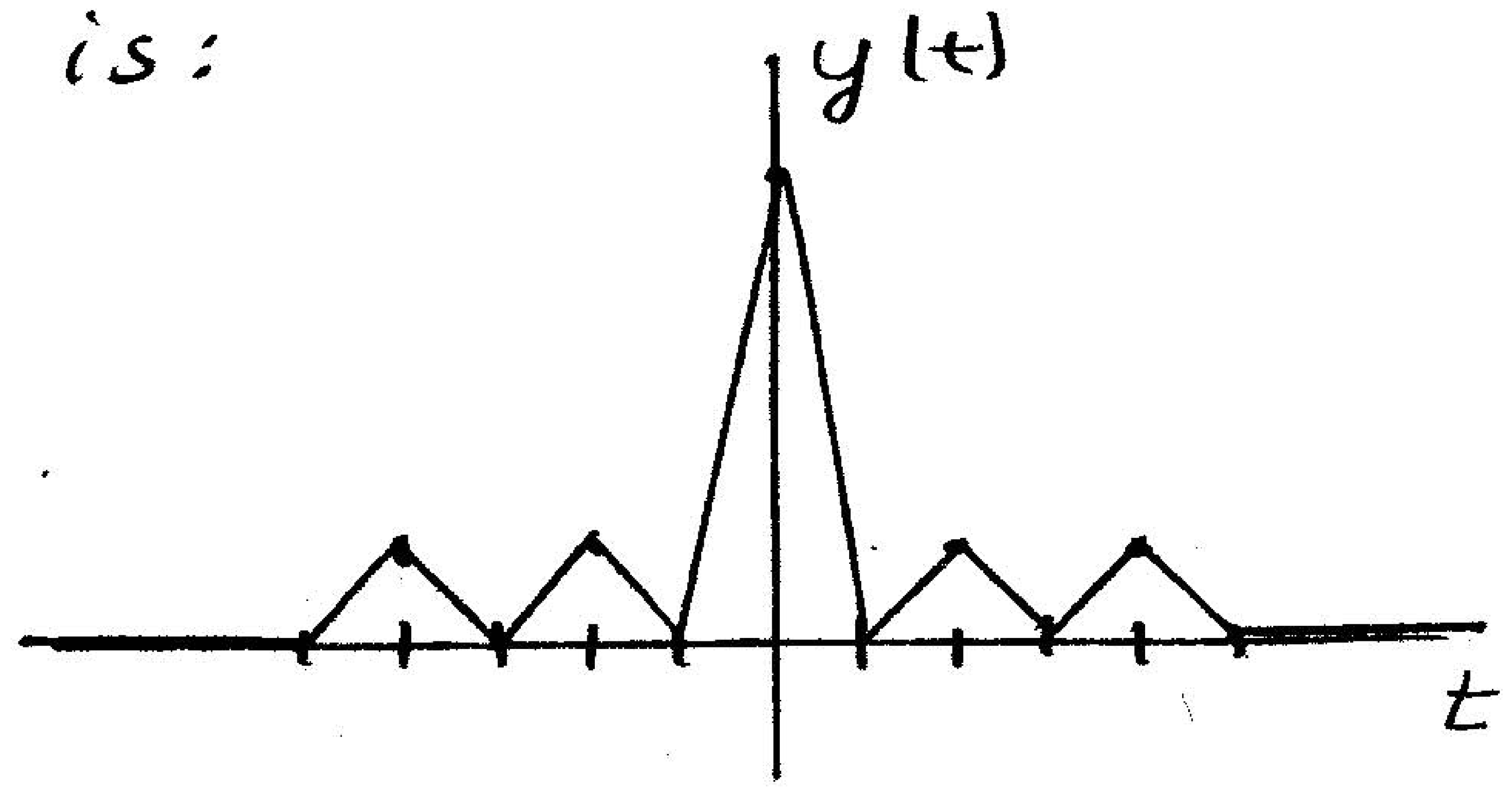


So $y(-3) = \int g(t-\tau)\, u(\tau)\, d\tau = 0$

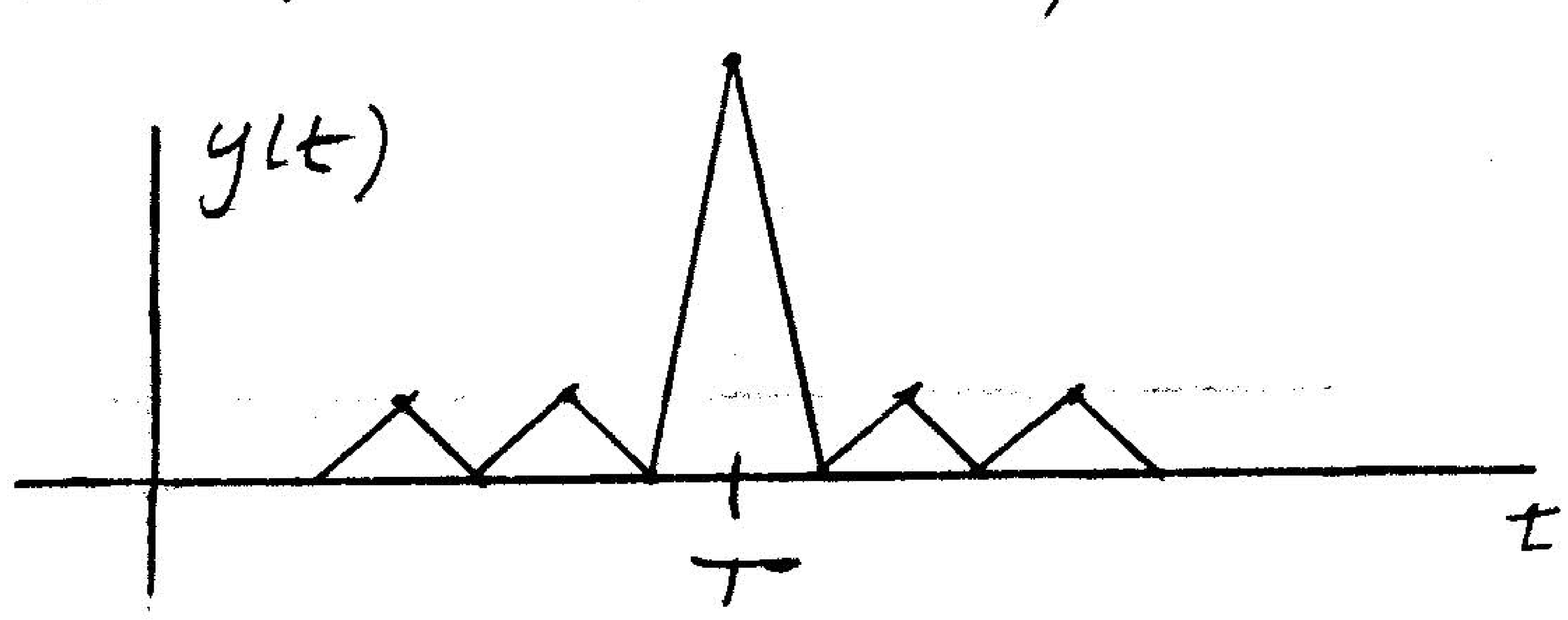
Continuing in this fashion, we have

t	$y(t)$
-4	1
-3	0
-2	1
-1	0
0	5
1	0
2	1
3	0
4	1
5	0

So $y(t)$ is:



2. By linearity and time invariance, delaying $u(t)$ by T will simply delay $y(t)$, so the convolution $g(t) * u(t-T)$ is as above, shifted right by T.



3. T is easily identified as the time at which the max of $y(t)$ occurs.