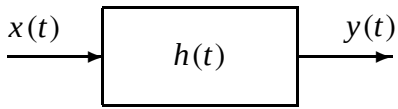
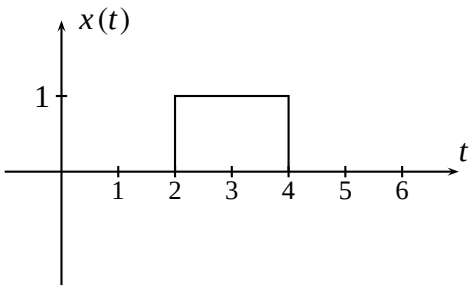
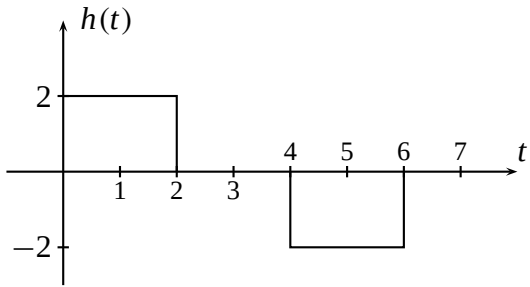
PROBLEM:

Consider the linear time-invariant system shown below.



The input $x(t)$ and the impulse response $h(t)$ are shown in the figures below.





(a) Draw $x(1-t)$.

(b) Make a carefully labeled plot of the filter output, $y(t)$.

McClellan, Schafer and Yoder, *Signal Processing First*, ISBN 0-13-065562-7.
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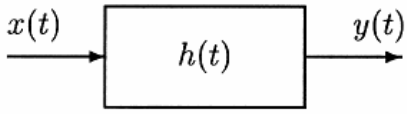
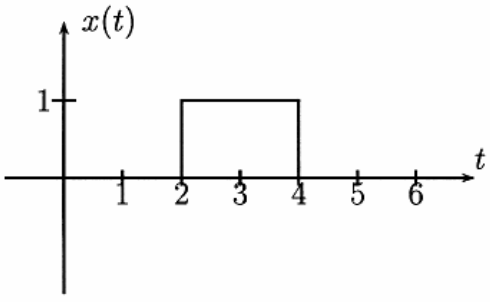
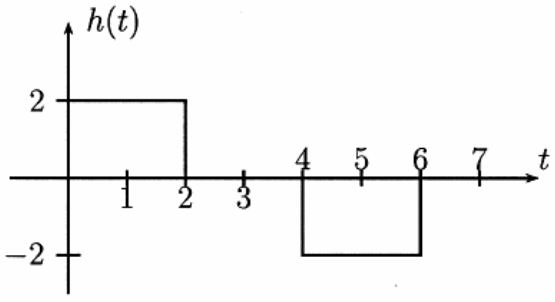
SOLUTION

Consider the linear time-invariant system shown below.

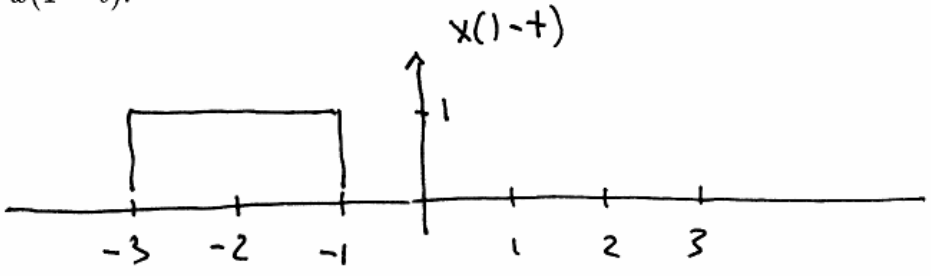


The input $x(t)$ and the impulse response $h(t)$ are shown in the figures below.



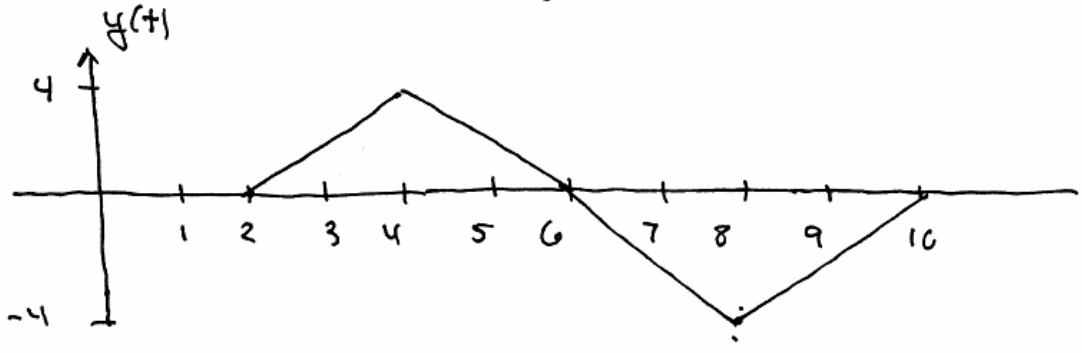


(a) Draw $x(1-t)$.



(b) Make a carefully labeled plot of the filter output, $y(t)$.

Recall that the convolution of two pulses of the same length gives a triangle. So, we have



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