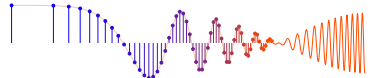
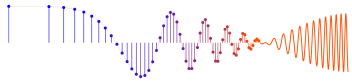


EXERCISE 9.13: The impulse response of the ideal delay system is $h(t) = \delta(t - t_d)$. For what values of t_d will the delay system be causal?

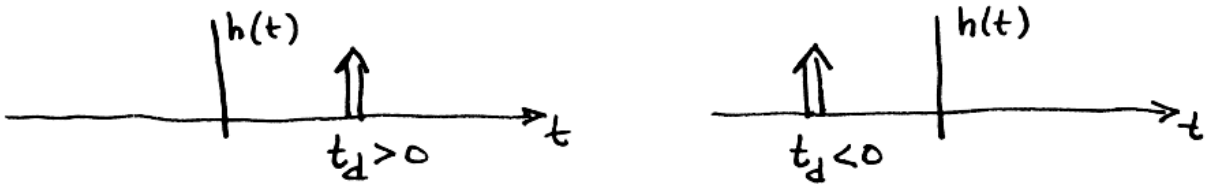
McClellan, Schafer and Yoder, *Signal Processing First*, ISBN 0-13-065562-7.
Prentice Hall, Upper Saddle River, NJ 07458.

SOLUTION



An LTI system is causal if $h(t)=0$ for $t<0$.

Here are two plots of $h(t)=\delta(t-t_d)$



Thus we need $t_d \geq 0$ for the ideal delay system to be causal.