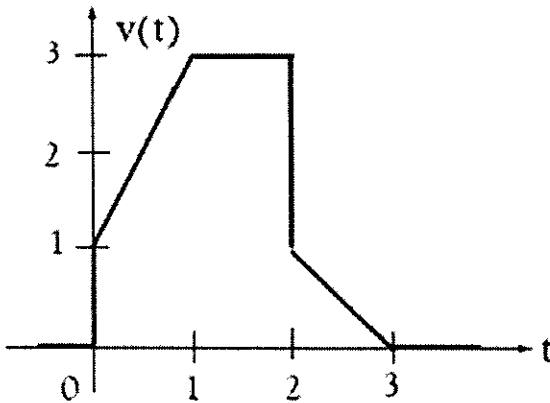


EE 207-03 – Fall 2010
Quiz 1

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Let the signal $v(t)$ be as shown below

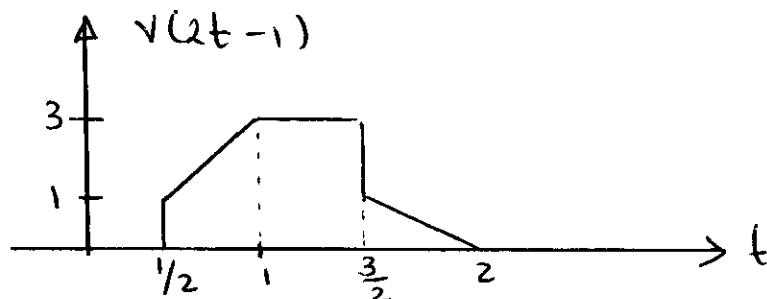


(a) Express $v(t)$ in terms of singularity functions ?

(b) Plot $v(2t-1)$?

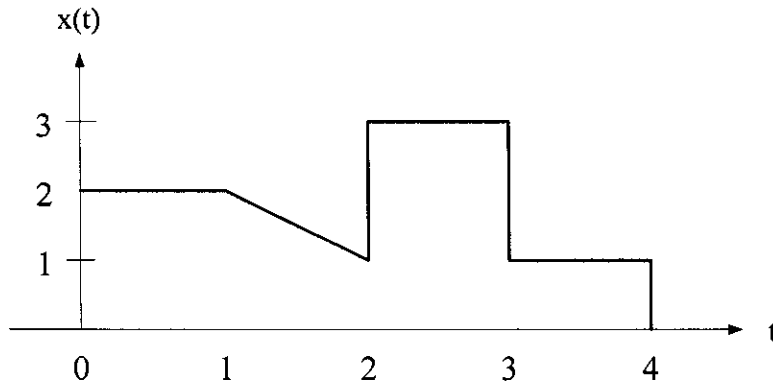
$$(a) \quad v(t) = u(t) + 2r(t) - 2r(t-1) - 2u(t-2) - r(t-2) + r(t-3)$$

$$(b) \quad \begin{aligned} 0 < 2t - 1 < 1 & \Rightarrow \frac{1}{2} < t < 1 \\ 1 < 2t - 1 < 2 & \Rightarrow 1 < t < \frac{3}{2} \\ 2 < 2t - 1 < 3 & \Rightarrow \frac{3}{2} < t < 2 \end{aligned}$$



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Quiz 1

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For the signal $x(t)$ shown above :

- (a) Expand $x(t)$ on terms of elementary functions ?
 (b) Plot the function $x(2t-3)$?

$$(a) \quad x(t) = 2u(t) - r(t-1) + r(t-2) + 2u(t-2) - 2u(t-3) - u(t-4)$$

$$(b) \quad \begin{aligned} 0 < 2t-3 < 1 &\Rightarrow \frac{3}{2} < t < 2 \\ 1 < 2t-3 < 2 &\Rightarrow 2 < t < \frac{5}{2} \\ 2 < 2t-3 < 3 &\Rightarrow \frac{5}{2} < t < 3 \\ 3 < 2t-3 < 4 &\Rightarrow 3 < t < \frac{7}{2} \end{aligned}$$

