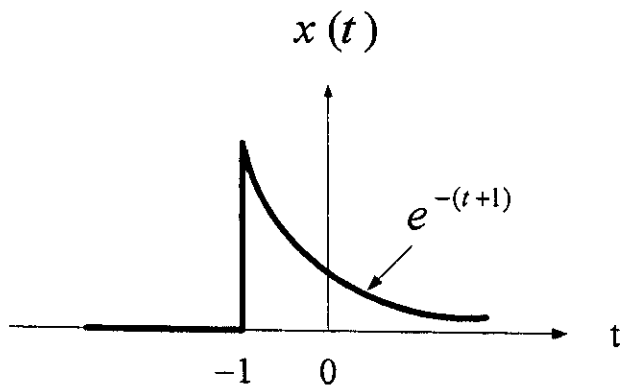


EE 207-01 – Winter 2010
Quiz 5

SER	ID	NAME	KEY
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If the signal $x(t)$ is shown below



Find the Laplace transform of $x(t)$, $X(s)$?

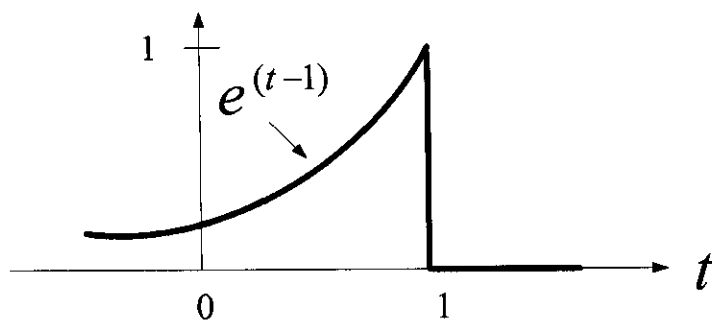
$$\begin{aligned} X(s) &= \int_0^{\infty} x(t) e^{-st} dt = \int_0^{\infty} e^{-(t+1)} e^{-st} dt \\ &= \int_0^{\infty} e^{-1} e^{-t} e^{-st} dt = e^{-1} \int_0^{\infty} e^{-(1+s)t} dt \\ &= e^{-1} \left. \frac{e^{-(1+s)t}}{-(1+s)} \right|_0^{\infty} = e^{-1} \frac{0 - 1}{-(1+s)} \\ &= \frac{e^{-1}}{1+s} \end{aligned}$$

EE 207-02 – Winter 2010
Quiz 5

SER	ID	NAME	KEY
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If the signal $x(t)$ is shown below

$x(t)$



Find the Laplace transform of $x(t)$, $X(s)$?

$$\begin{aligned}
 X(s) &= \int_0^{\infty} x(t) e^{-st} dt = \int_0^1 e^{(t-1)} e^{-st} dt \\
 &= e^{-1} \int_0^1 e^{(1-s)t} dt = e^{-1} \left. \frac{e^{(1-s)t}}{(1-s)} \right|_0^1 \\
 &= e^{-1} \frac{e^{(1-s)} - 1}{1-s} = e^{-1} \frac{e^1 e^{-s} - 1}{1-s} \\
 &= \frac{e^{-s} - e^{-1}}{1-s}
 \end{aligned}$$