

Due: Thursday, December 9, 2004

1. Using the definition of the Laplace transform in Eq. 3.1, find the Laplace transform for the following functions:
 - a. $\mathcal{L}\{e^{-3t}\}$
 - b. $\mathcal{L}\{t\}$
 - c. $\mathcal{L}\{3 - e^{-3t}\}$
 - d. $\mathcal{L}\{2e^{-4t}(u(t+1) - u(t-4))\}$
 - e. $\mathcal{L}\{\sin(t)u(t)\}$
 - f. $\mathcal{L}\{e^{-2t}u(t)\}$
 - g. $\mathcal{L}\{e^{-2t}u(t-2)\}$
 - h. $\mathcal{L}\{e^{-(t-1)}u(t-2)\}$
2. Find the Laplace transform for the following functions using the properties in Tables 1 and 2.
 - a. $\mathcal{L}\{(t-3)u(t-3)\}$
 - b. $\mathcal{L}\{tu(t-3)\}$
 - c. $\mathcal{L}\{e^{-3t} \cos(3t)\}$
 - d. $\mathcal{L}\{e^{-3(t-4)} \cos(3(t-4))u(t-4)\}$
 - e. $\mathcal{L}\{t \sin(4t)\}$
 - f. $\mathcal{L}\{(t-1) \cos(3(t-1))u(t-1)\}$
 - g. $\mathcal{L}\{e^{-2t}u(t-2)\}$
 - h. $\mathcal{L}\{e^{-(t-1)}u(t-2)\}$