

MthSc 208: Differential Equations (Fall 2010)
In-class Worksheet 14: Laplace Transforms and the Heavyside Function

NAME:

Recall the following properties of the Laplace transform:

(i) $\mathcal{L}\{e^{at}\}(s) = \frac{1}{s - a}$

(ii) $\mathcal{L}\{t^n\}(s) = \frac{n!}{s^{n+1}}$

(iii) $\mathcal{L}\{f(t - c)H(t - c)\}(s) = e^{-cs} F(s)$

1. Compute $\mathcal{L}\{(t - 3)^2 H(t - 3)\}(s)$.

2. Compute $\mathcal{L}\{t^2 H(t - 3)\}(s)$.

3. Compute $\mathcal{L}\{e^{t-1} H(t-1)\}(s)$.

4. Compute $\mathcal{L}\{e^{7-t} H(t-6)\}(s)$.