

Quiz 8, Math 246, Professor David Levermore
Thursday, 5 April 2018

Your Name:

Discussion Instructor (circle one):	Kilian Cooley	Corry Bedwell	Thien Ngo
Discussion Time (circle one):	8:00	9:00	10:00
			11:00

No books, notes, calculators, or any electronic devices.

Show your reasoning for full credit. Good luck!

Short Table: $\mathcal{L}[t^n e^{at}](s) = \frac{n!}{(s-a)^{n+1}}$ for $s > a$, $\mathcal{L}[u(t-c)j(t-c)](s) = e^{-cs}\mathcal{L}[j](s)$.

- (1) [3] The Green function for the linear differential operator $D^2 + 2D + 1$ is $g(t) = t e^{-t}$. Find its natural fundamental set of solutions associated with $t_I = 0$.

- (2) [3] Find $V(s) = \mathcal{L}[v](s)$ where $v(t) = u(t-3)e^{-4t}$.

- (3) [4] Find $y(t) = \mathcal{L}^{-1}[Y](t)$ where $Y(s) = e^{-2s} \frac{10}{(s-4)(s+1)}$.