

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [3 points] Show from scratch that $\mathcal{L}\{y'\} = sF(s) - f(0)$, where $F(s) = \mathcal{L}\{y\}$.

2. [3 points] Compute from scratch the Laplace transform of $u_c(t)$.

3. [6 points] Use Laplace transforms to find the particular solution of the initial value problem

$$2y'' + 7y' + 3y = 0, \quad y(0) = -1, \quad y'(0) = 8.$$