

QUIZ 6 - MATH 310

Thursday, March 13

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. [6 points] Consider

$$f(t) = \begin{cases} \frac{1}{2}t, & \text{if } 0 \leq t < 2, \\ 1, & \text{if } t \geq 2. \end{cases}$$

- (a) Neatly sketch the graph of $y = f(t)$.

- (b) Compute the Laplace transform $\mathcal{L}\{f\}$.

2. [4 points] Showing all steps (but not from scratch) find the Laplace transform of

$$f(t) = 7e^{-3t} + 11 \cos(5t) - 2t^3 + t^2 e^{-t}.$$