

## QUIZ 5 - MATH 310

Thursday, March 21

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 the function

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

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

- (b) Compute from scratch  $\mathcal{L}\{f\}$ .

2. [6 points] Use Laplace transforms to solve the initial value problem

$$y'' + y = e^t, \quad y(0) = 5, \quad y'(0) = 0.$$