

# MAT320 Quiz #6

10/24/2023

Please answer the following questions, and write your name on top of the quiz.

**Question 1.** Write any one of the equivalent characterizations of a measurable function

$$f : \mathbb{R} \rightarrow \mathbb{R}.$$

**Question 2.** For each of the below questions, say yes or no, and if no give a counterexample to the statement

- a) Is every step function a simple function?
- b) Is every simple function a step function?

**Question 3.** Do all measurable functions have  $f : [0, 1] \rightarrow \mathbb{R}$  have bounded range? Answer yes or no, and if no, give a counterexample.

**Extra credit: Question 4.** Give an example of a Riemann-integrable function  $f : [0, 1] \rightarrow \mathbb{R}$  that is discontinuous at infinitely many points.