

Math 325. Group Quiz #10e

(1) State the *Boundedness Theorem*.

(2) TRUE OR FALSE, and *justify*:

The function

$$f(x) = \begin{cases} -x & \text{if } x \geq 0 \\ -x - x^2 & \text{if } x < 0 \end{cases}$$

is differentiable at $x = 0$.

(3) TRUE OR FALSE, and *justify* with a short proof or example:

There is a continuous function $f : [1, 3] \rightarrow \mathbb{R}$ with range $[0, \frac{5}{2}] \cup [\frac{7}{2}, 4]$.