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Problem Set 8

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### Question 1

Suppose that  $f : [a, b] \rightarrow \mathbb{R}$ , is integrable, and suppose that  $m = \inf\{f(x) : x \in [a, b]\}$  and  $M = \sup\{f(x) : x \in [a, b]\}$ . Then, we have  $m(b - a) \leq \int_a^b f \leq M(b - a)$ .

**Proof:** Suppose  $f : [a, b] \rightarrow \mathbb{R}$  is integrable this means that