

### Problems 3.4

(0) Suppose that the domain of  $f$  is the interval  $I = [0,5)$  and  $f$  is continuous on  $I$ . Give an example to show that the conclusion of the Boundedness Theorem does not hold.

(3) Suppose that  $f$  is continuous on the set  $S = [0, \infty)$  and  $f$  is bounded on  $S$ . Give an example to show that the conclusion of the Extreme Value Theorem does not hold.