- Let S denote the set of positive real numbers. Define the operation of scalar multiplication as, $(rx) = x^r$ and operation of addition as, $(x+y) = x \cdot y$.
  - What is the zero vector $\mathbf{0}$ in the space?
  - What is the additive inverse, $-\mathbf{x}$?
  - Is S a vector space with these operations?