Name:

Problem 1: Consider the function $h \colon \mathbb{R} \to \mathbb{R}$ given by

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

where here $\mathbb{R}$ is given the standard topology. Prove that h is not continuous.