1. For $[0,1]$ inside $\mathbb{R}$ with the standard topology, which is/are true?

   a) $\{(\frac{1}{n}, 2)\}$ is a cover with no finite subcover

   b) $\{(\frac{-1}{n}, 2)\}$ is a cover with no finite subcover

   c) Both a) and b) are true

   d) Neither a) nor b) are true

2. For the Cantor set inside $\mathbb{R}$ with the standard topology, which is/are true?

   a) It is bounded

   b) The complement of the Cantor set, $(-\infty, 0) \cup (1, \infty) \cup \{\bigcup_{m=1}^{\infty} \bigcup_{k=0}^{3^{m-1}-1} (\frac{3k+1}{3^m}, \frac{3k+2}{3^m})\}$, is open

   c) Both a) and b) are true

   d) Neither a) nor b) are true

3. For the Cantor set with the subspace topology, which is/are true?

   a) $\{\frac{1}{4}\}$ is an open set in the topology

   b) The cantor set is not compact

   c) Both a) and b) are true

   d) Neither a) nor b) are true