1. a. Make a sketch of a set $S$ in $\mathbb{R}^2$ that is closed.

b. Make a sketch of a set $S$ in $\mathbb{R}^2$ that is neither open nor closed.

c. Give an example of a set in $\mathbb{R}^1$ that is open.

2. Finish the following definitions.
   a. Given a set $S$, a point $p$ is in the boundary of $S$ if
   b. A set $S$ is open if

3. In your sketch (1a), show one point that is in the boundary of $S$. Using your definition of boundary (2a), explain why this point is in the boundary. Illustrate your explanation with a sketch.