1. Let $U$ be a subset of $\mathbf{C}$. Then define the following:
(a) $U$ is open.
(b) The boundary of $U$.
(c) $U$ is connected.
(d) $U$ is a domain.
2. Let $f:(a, b) \rightarrow \mathbf{R}$. What is the definition of the derivative, $f^{\prime}(x)$, in terms of a limit of difference quotients?
