1. Complete the following:

**Theorem:** Let $f$ be continuous in a domain $D$. Then the following are equivalent:

(a)

(b)

(c)

2. Show that the function $f(x) = \frac{1}{z}$ does not have an antiderivative in the domain $D = \{z \in \mathbb{C} : z \neq 0\}$. 