Fix the ring $R = \mathbb{Z}[\sqrt{-7}]$, which has units $1, -1$. Consider the function $N : R \to \mathbb{Z}$ given by $N(a + b\sqrt{-7}) = a^2 + 7b^2$. Prove that:

(1) For all $x, y \in R$, $N(xy) = N(x)N(y)$; and
(2) $N(x) = 1$ if and only if x is a unit in R.