

1. Let $q(x) = ax^2 + bx + c$ with $a, b, c \in \mathbb{R}$ and $a \neq 0$. Prove that $\mathbb{R}[x]/(q(x))$ is isomorphic to one of $\mathbb{R} \times \mathbb{R}$, \mathbb{C} , or $\mathbb{R}[\epsilon]/(\epsilon^2)$.