

1. Let $V = \mathbf{R}$. For $u, v \in V$ and $\alpha \in \mathbf{R}$ define vector addition by $u \oplus v = u + v - 1$ and scalar multiplication by $\alpha \odot u = \alpha u - \alpha + 1$. Verify that V with the operations \oplus and \odot is a vector space.