

Math 3040 Discussion questions, Sept. 16, 2019

1. Let $(Z, N, +, \cdot)$ be an ordered integral domain. Let $n \in N$. Prove that there is no $x \in Z$ such that $x^2 = -n$.
2. Suppose $(Z, N, +, \cdot)$ is an ordered integral domain and $p < 0$. Prove that $pn < pm$ if and only if $m < n$.
3. Let $Z = \mathbb{Z}[t]$. We saw in class that if N is the set of polynomials whose leading coefficient is positive, then $(Z, N, +, \cdot)$ is an ordered integral domain. Find a different subset N' of Z such that $(Z, N', +, \cdot)$ is an ordered integral domain.