INFINITESIMAL ANALYSIS 88-503 HOMEWORK SET 4

Due Date: 9 may '22

1. The order type of ${}^*\mathbb{N}$ was described in Corollary 4.10.3 of the choveret of the course. Describe an analogous order type for ${}^*\mathbb{Z}$.

2. Let f be a real function that is defined on some open neighbourhood of $c \in \mathbb{R}$. Show that if f is constant on $hal(c)$, then it is constant on some interval $(c - \varepsilon, c + \varepsilon) \subseteq \mathbb{R}$.

3. Let f be a real function that is continuous on some interval $A \subseteq \mathbb{R}$. If $f(x)$ is real for all $x \in {}^*A$, show with the help of the previous exercise that f is constant on A.