Worksheet 1

1. Prove that if $a, b, c, m, n \in \mathbb{Z}$ and $a \mid b$, $a \mid c$, then $a \mid (mb + nc)$.
2. Suppose $d \in \mathbb{N}$ and $0 \leq n < d$. Suppose $n = qd + r$ with $q, r \in \mathbb{Z}$ and $0 \leq r < d$. Prove that $n = r$. *Then* compute q.