Problem 36. Let $A$ and $B$ be sets and define $D = (A - B) \cup (B - A)$.

i. Show that $D = (A \cup B) - (A \cap B)$.

ii. In words, give a description of $D$.

Problem 37. For any $n \in \mathbb{N}$, $M_n = \{(a, b) \mid n | (a - b) \} \subseteq \mathbb{Z}^2$.

i. Show that $M_n$ is an equivalence relation on $\mathbb{Z}$. (You are allowed to use results from previous work, so please don’t reinvent the wheel on this problem.)

ii. For any $k \in \mathbb{Z}$, define $[k] = \{a \in \mathbb{Z} \mid (a, k) \in M_n\}$. Give a description of the set $[6]$ in the case where $n = 10$. 