

Tutorial Worksheet 3

1) (a) Let $f : A \rightarrow B$ be a function, and $C, D \subseteq A$. Prove that $f(C) \setminus f(D) \subseteq f(C \setminus D)$.

(b) Prove or disprove: if $f : A \rightarrow B$ be a function, and $C, D \subseteq A$ then $f(C) \setminus f(D) = f(C \setminus D)$.

2) Is the set \mathbb{R}^2 , with addition and multiplication defined below a field? Explain.

$$(a, b) + (c, d) = (a + c, b + d) \quad (a, b) \cdot (c, d) = (ac, bd)$$