Homework 1, February 24, 2022

Answer by complete sentences. Give reasons to all your assertions.

Example 1. Which conditions must be satisfied by sets *A*, *B*, *C* to guarantee that

$$(A \setminus C) \cup B = A \setminus (C \cup B.)$$

Example 2.

Find an example of a mapping $f : \mathbb{N} \longrightarrow \mathbb{N}$ which is surjective but not injective.

Example 3.

A relation R on a closed interval A = [-2, 3] is given by:

x R y if and only if $x^2 + (y-1)^2 \le 3xy + 2$.

Decide a) whether $-1(R \circ R)1$ and b) whether $0(R^{-1} \circ R)3$.