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Group work 05/20

MAD 2104

Summer A 2015

1. (5 pts; 2effort + 3correctness) In each case, prove or disprove. To disprove, it is enough to give a counterexample. (Note that while a Venn diagram helps, it is not a substitute to a proof or a concrete counterexample.)

(a) $A \setminus (B \setminus C) = (A \setminus B) \setminus C$, for all sets A, B, C .

(b) $(A \cap B) \times C = (A \times C) \cap (B \times C)$, for all sets A, B, C .

2. (5 pts; 2effort + 3correctness) Consider the set $A = \{a, b, c, d\}$. In each case, give an example of a relation \mathcal{R} on A satisfying the conditions. Just give the example, no further justification is needed.

(a) \mathcal{R} is symmetric, anti-symmetric, but not reflexive.

(b) \mathcal{R} is reflexive, transitive, but not symmetric and not anti-symmetric.