

Discrete Mathematics: Additional Exercises to Lecture 3

1. Let A be an $m \times n$ -matrix with real numbers. Give quantified expressions for the following statements.

(a) [3 pt] In at least one of the columns of A the entries form a strictly increasing sequence.

(b) [3 pt] The first row of A contains exactly one zero.

2. Let \mathcal{U} be a universe and let $A, B \subseteq \mathcal{U}$ be sets.

Furthermore let I be a nonempty index set and let, for each $i \in I$, $A_i \subseteq \mathcal{U}$ be a set. Give quantified expressions for the following statements.

(a) [3 pt] $\overline{A} \cap B = \emptyset$.

(b) [3 pt] $\bigcup_{i \in I} A_i = \mathcal{U}$.