

## QUIZ 10%

**Exercise 1** (4 marks). Given  $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ ;  $B = \{1, 3, 5, 7, 9, 11\}$ . Find the union, intersect, non-symmetric difference, and symmetric difference of A and B.

**Exercise 2** (4 marks). Find the explicit formula of the following recurrence relation:

$$a_k = 11a_{k-1} - 30a_{k-2}$$

Given initial conditions  $a_0 = 7, a_1 = 5$

**Exercise 3** (2 marks). Let R be a binary relation between 2 positive real numbers defined as follow:

$$\forall x, y \in (0; +\infty) \Leftrightarrow 3x^2 - 10xy + 3y^2 \leq 0$$

Is R reflexive, symetric, anti-symetric, transitive? Prove your answer. Is it an equivalence relation? If it is, describe its equivalence class. Is it a partial order?