SC/MATH 1019B - HOMEWORK 2
DUE NOVEMBER,20 2018

Solutions to the problems below must be brought to class on November,20 2018. Solutions may by typed or neatly hand written. You must clearly indicate which problem you are solving. All solutions must be fully justified.

 # 1. Let $\Sigma = \{a, b, c\}$. Find a recurrence for the number of length n strings in Σ^* that do not contain any two consecutive a's, b's, nor c's (i.e. none of aa, bb, nor cc are in the string).

 # 2. Solve the recurrence $a_n = 5a_{n-1} - 6a_{n-2}$ where $a_0 = 2$ and $a_1 = 5$.

 # 3. Consider the relation R on $\mathbb{Z} \times (\mathbb{Z} \setminus \{0\})$ defined by
$$R = \{((a, b), (c, d)) : ad = bc\}.$$
Prove that R is an equivalence relation. Does the relation R have any meaning to you?