

# Homework 6: Invariants and Geometric Constructions

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## 1 Homework

### Problem 1.

Given a line  $l$  on the plane, construct line  $m$  such that the angle between  $l$  and  $m$  is  $45^\circ$ .

### Problem 2.

There are  $N$  numbers written on the board, each number is equal to 1 or  $-1$ . After one step, it is allowed to pick several (or one) consecutive numbers and change their signs. What is the minimum number of steps one needs to make all numbers equal to 1 (for any starting combination)?