

Combinatorics 2017 HW 1009

Student ID:

Name:

Score:

1. how many integer numbers from 1 to 10000 are not squares of integers or cubes of integers?
2. How many permutations of 1, 2, 3, ..., 9 have at least one odd number in its natural position?
3. $x_1 + x_2 + x_3 + x_4 = 20$, where $1 \leq x_1 \leq 6, 0 \leq x_2 \leq 7, 4 \leq x_3 \leq 8, 2 \leq x_4 \leq 6$
please calculate the number of integral solutions.
4. For the permutation $P = P_1 P_2 P_3 P_4$ of $\{1, 2, 3, 4\}$, how many feasible permutations are there if we constrain that $P_1 \neq 2, P_2 \neq 2, 3, P_3 \neq 3, 4, P_4 \neq 4$? (4 points)