

Graph Theory and Combinatorics MATH-42021/52021.

Home Work 8, due on Wednesday, November 6

Instructor: Prof. Artem Zvavitch

Problem 1. *If three identical dice are rolled, how many different outcomes can be recorder?*

Problem 2. *How many 8-digit sequences are there involving exactly six different digits?*

Problem 3. *Show that*

$$\sum P(10; k_1, k_2, k_3) = 3^{10},$$

where k_1, k_2, k_3 are non-negative integers such that $k_1 + k_2 + k_3 = 10$.

Problem 4. *How many arrangements are there of TINKERER with two but not three consecutive vowels?*

Problem 5. *How many ways there to distribute 20 different toys among five children? What if two children get 7 toys and three children get 2 toys? What if each child getting 4 toys?*

Problem 6. *How many integer non-negative solutions are there to $x_1 + x_2 + x_3 + x_4 + x_5 = 28$? what if we assume that all solutions are positive?*