

HOMEWORK 8 (MATH 180, WINTER 2021)

Read: MN (Second ed.), section 10.2-4, 13.3

Solve: Exercises in MN:

3, 5, 6 in §10.2

7, 8 (a) in §10.3

5 in §10.4

2 (a) in §13.3

Additional exercises:

I. Let G_n be the random graph on n vertices as in the lecture. Compute the expected number of subgraphs isomorphic to

a) C_4

b) K_4

c) $K_{3,3}$

d) P_{n-1}

II. Same as I, but the expected number of *induced* subgraphs

III. Prove that G_n has a Hamiltonian cycles with probability $1 - o(1)$.

This Homework is due Wednesday March 10, at 8:59 am (right before class). Please read the collaboration policy on the course web page. Make sure you write your name in the beginning and your collaborators' names at the end. Box all answers. Remember that answers are not enough, you also need to provide an explanation exhibiting your logic. The explanation can be brief, but must indicate all logical steps.

P.S. Each item above has the same weight.