

MATH 636, Fall 2013

HOMEWORK 1

due 5:00PM on Tuesday, September 10.

Background reading: Combinatorics: A Guided Tour, Section 1.1.

Thoroughly read the class web page including the syllabus and schedule. This should answer all the questions that you may have about the class.

Follow the posted homework guidelines when completing this assignment, and **only** consult with your classmates or professor to discuss the problem set.

1-1. Problem **1-1** must be completed online **before class** on **Tuesday 9/3** for credit.

- (a) Email me at chanusa@qc.cuny.edu with the following things: (1) Your name, (2) your class (Math 636), (3) the email address where you are best contacted, and (5) if you are an undergraduate, your expected graduation year. Thanks!
- (b) Take the syllabus quiz on Blackboard. **Retake** the quiz as necessary to earn a score of 100%.

Problems **1-2** through **1-5** should be written up (or typed) and handed in as class starts on Tuesday 9/10:

1-2. (ab) 1.1.2ab (This means parts a and b in Problem 2 of Section 1.1)

- (c) And: Assuming that the coin is fair, what is the probability that a sequence of 20 flips has exactly 10 heads and 10 tails?

1-3. (a) 1.1.5

- (b) Consider all ways to choose fifteen coins and the amount of money each way represents. (For example, 15 dimes equals \$1.50.) What is the smallest amount of money that occurs in at least two different ways?

1-4. 1.1.14

1-5. (a) How many subsets of $[25]$ contain no prime numbers?

- (b) How many subsets of $[25]$ have size 14 and no numbers larger than 20?

- (c) How many multisubsets of $[25]$ of size 10 have smallest element 6 and largest element 17?