

Math 358-Week Four Homework

Due October 2 (Friday) in class

1. Exercises 2.1 2, 3; Exercises 2.2 2,4,5,7 (for real this time!)
2. How many *ternary sequences* (sequences of 0's, 1's, and 2's) of length n have at least one 0, at least one 1, and at least one 2.
3. How many four-digit numbers (including those with leading 0's) are there in which no digit appears exactly twice?
4. Given a set of six letters with three of each of two kinds of letter ($\{a, a, b, b, c, c\}$), how many arrangements are there in which no pair of identical letters are adjacent. How many 'essentially different' arrangements are there (for example, *abacbc* is not essentially different from *bcbaca*, but is different from *cabcab*).
5. Generalize the previous exercise to a set of $2n$ letters with two of each of n kinds of letter. Generate the sequence of solutions for the first few n and research it on the OEIS.

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