Problem 0. (From the book.) Read Sections 2.6, 3.1, 3.2, and 4.2 and do the following problems:

Problem Set 6: 3, 4
Problem Set 7: 1, 4, 5
Problem Set 15: 1, 2

Problem 1. In how many ways can we distribute \( k \) identical pieces of candy to \( n \) children if each child gets at least \( j \) pieces?

Problem 2. For each of the following values, state a question relating a distribution of ten textbooks to fifteen students for which the given value is the answer.

i. \( \binom{15}{10} \)

ii. \( P(15,10) \)

iii. \( 15^{10} \)

iv. \( 10^{15} \)

Problem 3. How many 8-digit strings contain exactly 6 different digits?

Problem 4. Consider the equation \( x_1 + x_2 + x_3 + x_4 = 20 \).

i. Find the number of nonnegative integral solutions of this equation.

ii. Find the number of nonnegative integral solutions of this equation if \( 2 \leq x_1 \leq 7 \).