

Homework 2

Chapter 3, pp.76: 9, 14, 20, 23, 27, 36.

Chapter 4, p.116: 4, 6, 7, 8, 9, 11, 12, 23, 28.

Supplementary Exercises

1. Find the number of ways to select m numbers from $\{1, 2, \dots, n\}$ so that no two numbers are consecutive.
2. A *move* of a permutation of $\{1, 2, \dots, n\}$ is to take an integer in the permutation and insert it somewhere in the permutation. For example,

$$\begin{aligned} 3\bar{5}2614 &\rightarrow 325614 \rightarrow 312564 \rightarrow 312456 \rightarrow 123456; \\ 352614 &\rightarrow 352146 \rightarrow 321456 \rightarrow 342156 \rightarrow 134256 \rightarrow 123456. \end{aligned}$$

Give an algorithm to compute the minimal number of moves to restore an arbitrary permutation of $\{1, 2, \dots, n\}$ back to the form $12 \cdots n$.