
Mathematical Analysis of Algorithms

Homework #7

Due Date:

Reading Assignment: Chapter 7

Problems:

1. 7–11
2. 7–14
3. (a) 7–15
(b) Re-evaluate $P(z)$ by summing Equation (7.49) on m to see if you can get the same result as part (a).
4. 7–16
5. 7–22 (Find $P(z)$ by using the *symbolic method* discussed in class.)
6. 7–26
7. (a) Do 7–34 for $m = 1$ only. Namely, find a closed form for the (super) generating function $H(w) = \sum_{n \geq 0} G_n(z)w^n$, where

$$G_n(z) = \sum_{0 \leq k \leq n} \binom{n-k}{k} z^k.$$

For this purpose, you need first to find the recurrence of $G_n(z)$.

- (b) Find the closed form of $G_n(z)$. This is another derivation of formula (5.74).