

Problem 3

Twenty workers are to be assigned to 20 different jobs, one to each job. How many different assignments are possible?

Solution

For the first job, any of the twenty workers can be assigned. For the second job, there are only nineteen workers to choose from. For the third job, there are eighteen to choose from and so on. By the principle of counting, there are

$$20 \times 19 \times 18 \times \cdots \times 3 \times 2 \times 1 = 20! = 2\,432\,902\,008\,176\,640\,000$$

different possible assignments.