

Discrete Structures-2025: Tutorial-10

Combinatorics-II: Counting Techniques

- (1) Suppose that in a bushel of 100 apples, there are 20 that have worms in them, and 15 that have bruises. Only those apples with neither worms nor bruises can be sold. If there are 10 bruised apples that have worms in them, how many of the 100 apples can be sold?
- (2) An integer is called *squarefree* if it is not divisible by the square of a positive integer greater than 1. What is the number of squarefree positive integers less than 100?
- (3) How many positive integers from the set $\{1, 2, \dots, 10,000\}$ are not the second or higher power of an integer?