

1. In an art exhibition, there are three galleries, each displaying 5 pieces of artwork. An art enthusiast wishes to study a total of 6 artworks, making sure to observe at least one piece from each gallery. In how many ways can the art enthusiast do this?
2. What is the total number of six-digit numbers in which only and all the five odd digits appear?
3. Answer the following about a standard deck of cards:
 - (a) In how many ways can you choose four cards that are of the same suit?
 - (b) In how many ways can you choose four cards such that each one is of a different suit?
 - (c) In how many ways can you choose three face cards?
4. How many nine-character vehicle license plates can be made using the 26 letters of the English alphabet, where each letter can be either uppercase or lowercase, and the 10 digits,
 - (a) with repetition?
 - (b) without repetition?

How many of these license plates can be created if the plate must start and end with a letter and must include exactly three digits (with no repeated digits), and the remaining characters must be letters? Repetitions are allowed for letters.