

7. How many different ordered arrangements can be formed on a shelf with space for three books, if there are six different books available?

8. In how many ways can 4 boys and 5 girls be seated in a row of nine seats if boys and girls are to occupy alternate seats?

9. Let $N = \{1, 2, 3, 4, 5, 6\}$ and $L = \{A, B, C, D\}$.

a) How many 3 digit numbers are possible using digits (only) from the set N if the digits

i) can be repeated in a number? _____

ii) can not be repeated in a number? _____

b) How many license plates could be formed starting with a letter from L and following the letter with four digits selected from N , if the digits

i) can be repeated on a license plate? _____

ii) cannot be repeated on a license plate? _____

10. 1. Evaluate each of the following. Note: ${}_n P_r = P(n, r)$ and ${}_n C_r = C(n, r)$.

a) $0!$ _____

f) $P(7, 2) =$ _____

b) $5!$ _____

g) ${}_8 P_3 =$ _____

c) $\frac{7!}{5!} =$ _____

h) $C(8, 3) =$ _____

d) $\frac{9!}{10!} =$ _____

i) ${}_8 C_5 =$ _____

e) $\frac{100!}{97!} =$ _____

j) ${}_4 C_2 \cdot {}_5 C_3 =$ _____