

DATE 2024

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11/12

NO.

三級教習55

三級教習74

永中鍾定桐

ex-3 A, B, C, D... 七人排一列

1) A 不排 1st, B 不排 2nd, How many 排法

$$\begin{aligned}
 & 7! - \underbrace{6!}_{A1st} - \underbrace{6!}_{B2nd} + \underbrace{5!}_{AB} \\
 & = 5040 - 720 - 720 + 120 \\
 & = 3720 \#
 \end{aligned}$$

2) A 不排 1st, B 不排 2nd, C 不排 3rd, How many 排法

$$\begin{aligned}
 & 7! - \underbrace{6!}_{A1st} - \underbrace{6!}_{B2nd} - \underbrace{6!}_{C3rd} + \underbrace{5!}_{AB} + \underbrace{5!}_{AC} + \underbrace{5!}_{BC} - \underbrace{4!}_{ABC} \\
 & = 5040 - 720 - 720 - 720 + 120 + 120 + 120 - 24 \\
 & = 3216 \#
 \end{aligned}$$

3) (A or B 排 1st) or (B or C 排 last), How many 排法

$$\begin{aligned}
 & \underbrace{6!}_{A1st} + \underbrace{6!}_{B1st} - \underbrace{5!}_{AB} + \underbrace{6!}_{Blast} + \underbrace{6!}_{Clast} - \underbrace{5!}_{BC} - \underbrace{5!}_{B1st, last} \\
 & = 720 + 720 - 120 + 720 + 720 - 120 - 120 \\
 & = 2520 \#
 \end{aligned}$$