

6. 3 married couples, No Two men sit together.

$$\begin{array}{cccccc} \underline{M} & \underline{W} & \underline{M} & \underline{W} & \underline{M} & \underline{W} & 3! \cdot 3! \text{ ways to arrange} \\ \underline{W} & \underline{M} & \underline{W} & \underline{M} & \underline{W} & \underline{M} & 3! \cdot 3! \end{array}$$

men on both ends

$$\begin{array}{cccccc} \underline{M} & \underline{W} & \underline{M} & \underline{W} & \underline{W} & \underline{M} & 3! \cdot 3! \text{ ways to arrange} \\ \underline{M} & \underline{W} & \underline{W} & \underline{M} & \underline{W} & \underline{M} & 3! \cdot 3! \end{array}$$

$$N = 4 \cdot 3! \cdot 3!$$

7. Permutations of letters BCCDDDAEIOU, Vowels in alphabetical order.

few examples: B A C E L I O U D D D

A B E I C C O U D D D

...

Note, once the 5 positions for the vowels have been chosen, there is only one way to place them in those positions. Use the Mississippi method:

$$N = \frac{11!}{n(C_2) \cdot n(D_2) \cdot n(\text{vowels})} = \frac{11!}{2! \cdot 3! \cdot 5!}$$

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