

a-b-c-d-e-f

$$4! = 4 \times 3 \times 2 \times 1 = 24$$

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①

ab cdef

$$2! \times 4! = 2 \times 24 = 48$$

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$$(4-1)! = 3! = 6$$

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②

$$\frac{4!}{3!} = 4 \times 3 \times 2 = 24$$

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$$\frac{(4-1)!}{2} = \frac{3!}{2} = 6 \rightarrow \frac{24}{2}$$

③

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$$\frac{4!}{2!} = 4 \times 3 \times 2 = 24$$

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$$\binom{4}{2} \times 2! = \frac{4!}{2! \times 2!} \times 2! = \frac{4!}{2!} = 4 \times 3 \times 2 = 24$$

④

$$\binom{4}{2} \times 2! = \frac{4!}{2! \times 2!} \times 2! = \frac{4!}{2!} = 24$$

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$$\binom{4}{3} \times 3! = \frac{4!}{3! \times 1!} \times 3! = 4 \times 3 \times 2 \times 1 = 24$$

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$$4! \times 3! = 24 \times 6 = 144$$

$$\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \\ + 240 \\ \hline 144 \end{array}$$

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$$\binom{7}{4} \times \frac{7!}{4!} = \binom{7}{4} \times \frac{7!}{4!} = \frac{7 \times 6 \times 5 \times 4}{4!} \times \frac{7!}{4!}$$

$$\textcircled{6} = 7 \times 6$$

$$\textcircled{7} \boxed{00000} \boxed{00000}$$

$$5! \times 5! \times 2! = 120 \times 120 \times 2$$

$$= 28800$$

6

$$\binom{7}{4} \times 4! = 7 \times 4! = 7 \times 24 = 168$$

$$\textcircled{8} \rightarrow = (7)$$

$$\textcircled{9} \boxed{0} \boxed{0} \boxed{0} \boxed{0} \boxed{0} \boxed{0}$$

$$\binom{7}{5} \times 5! \times 2! = \frac{7!}{2!} \times 2! = 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 2$$

$$= 10080$$

7

$$5! = 120 \quad ab \boxed{cde} f$$

$$\textcircled{10} \rightarrow 5 \times 4!$$

پایه از

کل حالت (هیچ سیمی + سیمی ساده) = $10! - 9! \times 5! - \binom{7}{5} \times 5! \times 2!$

$\textcircled{11}$ $= 4! (5 \times 4! - 5! - 2!) = 720 \times 3100 = 2232000$

$\rightarrow = \frac{4!}{5!} \times 5! \times 2!$
 $= 4! \times 2!$

$$\begin{array}{r} 72 \\ \times 31 \\ \hline 72 \\ + 216 \\ \hline 2232 \end{array}$$

8

$$ab \boxed{cde} f \quad 5! \times 2! = 120 \times 2 = 240$$

$\textcircled{12}$

$$5! \times 5! \times 2 = 120 \times 120 \times 2 = 28800$$

$\textcircled{13}$

9

$$\textcircled{14} \frac{4!}{2!} = 4 \times 2 \times 2 \times 2 = 32$$

$$5! \times 4! = 120 \times 24 = 2880$$

$\textcircled{15}$

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