Task₂ probability Dr Samir

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1- $nCr = \dfrac{n!}{r!(n-r)!}$ = 495×70×1 = 34650

2- There are 3 * 2 * 1 permutations of (a, b, c)

3- A. n = 12 &2 = $\dfrac{(12!)}{(2! * 10!)}$ = 66

There are 4 defective items in box

$P(A) = \dfrac{6}{66} = \dfrac{1}{11}$ , $P(B) = \dfrac{28}{66} = \dfrac{14}{33}$ ——> ①

P(atleast one item is defective = 1 - P(no item is defecti

= $1 - \dfrac{28}{66} = \dfrac{38}{66}$ .

4- i = $\dfrac{24}{91}$     ii = $\dfrac{225}{455}$     iii = $1 - \dfrac{120}{455} = \dfrac{335}{455}$

5- $-\dfrac{1}{3} + \dfrac{1}{2} - \dfrac{1}{6} = \dfrac{5}{6}$

6- $P(A) = \dfrac{3}{8}$  $P(A') = 1 - \dfrac{3}{8} = \dfrac{5}{8}$    ——> ①

$P(B') = 1 - \dfrac{1}{2} = \dfrac{1}{2}$ ——> ②

$P(A \cup B) = P(A) + P(B) - P(A \cap B) = \dfrac{3}{8} + \dfrac{1}{2} - \dfrac{1}{2} = \dfrac{7}{8}$

$P((A \cup B)') = 1 - \dfrac{7}{8} = \dfrac{1}{8}$ ——> ③

$P((A \cap B)') = 1 - \dfrac{1}{2} = \dfrac{1}{2}$ ——> ④

$P(A' \cap B) = \dfrac{1}{2} - \dfrac{1}{2} = 0$

(F) = 0

$$7 - \frac{5}{6} * \frac{5}{6} * \frac{5}{6} = \frac{125}{216}$$

$$8 - K^2 = 9, \quad K = \pm 3$$

$$9 \cdot 1 - \left(\frac{125}{216}\right) = \frac{91}{216}$$