8 Shom p.46: ex.(3.7)

20\. Two men m_1 and m_2, and three women w_1, w_2 and w_3 are in a chess tournament (play games). those of the same sex have equal prob. of winning. but each man is twice as likely to win as any woman,

لكن الرجل له ضعف الاحتمال في الربح من المرأة

(A) Find the prob. that a woman wins the tournament (play game).

(B) if m_1 and w_1 are married, find the prob. that one of them wins the tournament (game).

$p(w) = p \Rightarrow p(m) = 2p.$

اذا كان الرجل الاول m_1
متزوج بالمرأة الاولى w_1
جد احتمال بأن تفوز واحد منهم.
(وهذا يعني لا يوجد تحيز فيما بينهم).

set. $p(w_1) = p$

then $p(w_2) = p(w_3) = p$

and $p(m_1) = p(m_2) = 2p.$

and $p(m_1) = p(m_2) = 2p$.

Next set the sum of the prob. of the five. Sample points equal to one.

$$p + p + p + 2p + 2p = 1 \quad \text{or} \quad p = \frac{1}{7}.$$

we seek (A) $p\{(w_1, w_2, w_3)\}$

(B) $p(m_1, w_1)$

then by definition

(A) $p(w_1, w_2, w_3) = p(w_1) + p(w_2) + p(w_3)$

$$= \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$

$$= \boxed{\frac{3}{7}}$$

then by definition

$p(M) + p(W) = 1$

$p + 2p = 1$

$p = \boxed{\frac{1}{3}}$

(A) $p(w_1, w_2, w_3) = p(w_1) + p(w_2) + p(w_3)$

$= \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$

$= \boxed{\frac{3}{7}}$

$p(M_1, w_1) = p(M_1) + p(w_1) = \frac{2}{7} + \frac{1}{7} = \boxed{\frac{3}{7}}$

$$\frac{\ \ }{C_1^{52}} + \frac{\ \ }{C_1^{52}} = \boxed{\frac{\ \ }{52}}$$

ex. 22

You will win in 10 if the cards selected is either black or king what is the prob. of winning in the games.

A = the cards is black.

B = the card is king.

$$P(A \cup B) = P(A) + P(B) - P(AB)$$

$$\frac{C_1^{26}}{C_1^{52}} + \frac{C_1^{4}}{C_1^{52}} - \frac{C_1^{2}}{C_1^{52}} = \boxed{\frac{26}{52}}$$

ex. 23 If a dice is thrown once what is the prob. of getting

$$\frac{C_1^{26}}{C_1^{52}} + \frac{C_1^{4}}{C_1^{52}} - \frac{C_1^{2}}{C_1^{52}} = \boxed{\frac{26}{52}}$$

Ex. 23 If one dice is thrown once what is the prob. of getting either even or divisible by 3.

A = even $\qquad S = \{1, \ldots, 6\}$

B = divi. by 3.

$$P(A \cup B) = P(A) + P(B) - P(AB)$$

$$= \frac{3}{6} + \frac{2}{6} - \frac{1}{6} = \boxed{\frac{4}{6}}$$

or $p(C) = 1 - p(C^c) = 1 - 0.01 = \boxed{0.99}$

ex.25 if one dice is thrown what is the prob. of getting either 4 or 5

either 4 or

A = number 4 appears.

B = " 5 "

$p(A \cup B) = p(A) + p(B) - p(AB)$

$= \frac{1}{6} + \frac{1}{6} - 0 = \boxed{\frac{2}{6}}$

$p(1) + p(2) + p(3) + \dots + p(100) = 0.05$

at least one $p(1) + p(2) + p(3) + \dots + p(100) = 0.01$

at least two $p(2) + p(3) + \dots + p(100)$

$= 0.04$

$p(1)$

ex. 26

we have 4-pearson Mr (a, b, c, d), we selecte two from their

A = Mr a is to be receive apriase. جائزة

يستلم

B = either Mr a or Mr d but not both,

اي ليس سويا

$S = \{ab, ac, ad, bc, bd, cd\}$, $n(S) = 6$ or $S = C_2^4 = 6$

$A = \{ab, ac, ad\}$, $n(A) = 3$ or $p(A) = \dfrac{C_1^1 C_1^3}{C_2^4} = \dfrac{3}{6}$

$p(A) = \dfrac{n(A)}{n} = \dfrac{3}{6}$

$B = \{(a,b), (a,c), (b,d), (c,d)\}$. , $n(B) = 4$

$p(B) = \dfrac{n(B)}{n} = \dfrac{4}{6}$ or $p(B) = \dfrac{C_1^2 \cdot C_1^2}{C_2^4} = \dfrac{C_1^1 \cdot C_1^2 + C_1^1 \cdot C_1^2}{C_2^4}$

6

ex. 27.

We have (2,5,4) number and want to form it as 3-digit number (i) What is the probability that the 3-digit number is even.

(ii) what is the prob. that the 3-digit number is divisible by 2.

(iii) . - - - - - - - - odd.

اذا اردنا ترتيبهم بشكل صف اي 254 خانات كم؟

عدد $S = n! = 3! = \boxed{6}$

او $S = \boxed{\{245, 425, 452, 254, 524, 542\}}$, $n(S) = 6$.

A : the 3-digit number is even.

B : the 3-digit number is divisible by 2

C : the 3-digit number is odd.

$A = \{254, 542, 452, 524\} \Rightarrow n(A) = 4$.

2	1	2

⑥

ex. 27.

We have (2,5,4) number and want to form it as 3-digit number (i) What is the probability that the 3-digit number is even.

(ii) what is the prob. that the 3-digit number is divisible by 2.

(iii) - - - - - - - - - odd.

اذا اردنا ترتيبهم بشكل جت اي 254 فات هو

→ لما $S = n! = 3! = \boxed{6}$

او $S = \boxed{\{245, 425, 452, 254, 524, 542\}}$, $n(S) = 6$.

A: the 3-digit number is even.

B: the 3-digit number is divisible by 2

C: the 3-digit number is odd.

$A = \{254, 542, 452, 524\} \Rightarrow n(A) = 4$.

2	1	2

أ) $S = \boxed{\{245, 425, 452, 254, \ldots\}}$,

A : the 3-digit number is even.

B : the 3-digit number is divisible by 2

C : the 3-digit number is odd.

$A = \{254, 542, 452, 524\} \Rightarrow n(A) = 4.$

2	1	2

$2 \times 1 \times 2$

$P^2_2 \cdot P^2_2$

ب) $p(A) = \dfrac{n(A)}{n(S)} = \dfrac{P^2_2 \cdot P^2_2}{n!}$

$= \dfrac{\frac{2!}{1!} \cdot \frac{2!}{0!}}{3!} = \dfrac{4}{6}$

ج) or $\boxed{P(A) = \dfrac{n(A)}{n} = \dfrac{4}{6}.}$

$B = \{254, 542, 452, 524\}, n(B) = 4$

$p(B) = \dfrac{n(A)}{n} = \dfrac{4}{6}$

3 :

$\therefore$ or $\boxed{P(A) = \frac{n(A)}{n} = \frac{4}{6}}$

$B = \{254, 542, 452, 524\}$, $n(B) = 4$

$P(B) = \frac{n(B)}{n} = \frac{4}{6}$

$C = \{425, 245\}$, $n(C) = 2$

$P(C) = \frac{n(C)}{n} = \frac{2}{6}$

or

$n(C) = \frac{2}{6}$

(1)

{5}

| 2 | 1 | 1 |

$P^1_2 \cdot P^1_1$

$2 \times 1 \times 1 = 2$