Four cards are drawn from a pack of cards.

Find probability that is All are diamonds

iis there is one card of each suit and

iiis there are two spades and two heads.

A pack is of 52 cards.

Total number of ways drawing four cards

is

n(s) = 52 cy

= 52 x 51 x 50 x 49 x 48

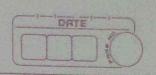
4 x 3 x 2 x 1

A -> all are diamonds.

n(A) = 13 cy

P(A) = n(A)

n(S)



$$40 C_{H} = 40 \times 39 \times 38 \times 37$$

$$= 40 \times 39 \times 38 \times 37$$

$$= 40 \times 39 \times 38 \times 37$$

$$= 91390$$

Here,

$$1, ----, 25, ---, 40.$$
 $1 + 0 24 \Rightarrow 24 c_2$
 $25 + 0 40 \Rightarrow 15 c_1$

$$= \underbrace{24 \times 23}_{2 \times 1} \times 15$$

a. A has one share in lottery in which there is I prize & 2 blanks and B has three share in a lottery in which there are 3 prizes & 6 blanks. Compare probability of A's success to that of B's success.

Probability of A to lose =
$$\frac{2c_1}{3c_1}$$



Probability of B to lose = 6c3 = 5

$$P(A+0B) = \frac{1/3}{16/21}$$

= $\frac{7}{16}$.

When a coin is tossed 4 times, Find probability of getting is Exactly one head

2) At most three heads.

3) At least two heads.

Total number of outcomes = 24

 $n(s) = \{ \{ HHHH \}, \{ HHHT \}, \{ HHTH \}, \{ HHTT \}, \}$ {HTHH}, {HTHT}, {HTTH}, {HTTT], {TTHH}, {TTHT}, {TTTH}, {TTTT}

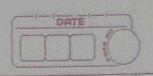
A = exactly one head.

n(A)= 4

P(A) = n(A)

B = at most three heads. n(B) = 16 - n(4 heads)

P(B) = n(B)



c = at least two heads.

$$v(c) = 11$$

$$P(c) = \overline{n(c)}$$

$$-n(s)$$

a. Ten coins are thrown simultaneously. Find the probability of getting at least 7 heads.

$$P(head) = \frac{1}{2} = P.$$

$$p(tail) = 1-p = \frac{1}{2} = q$$

$$P(X) = P(7) + P(8) + P(9) + P(10)$$

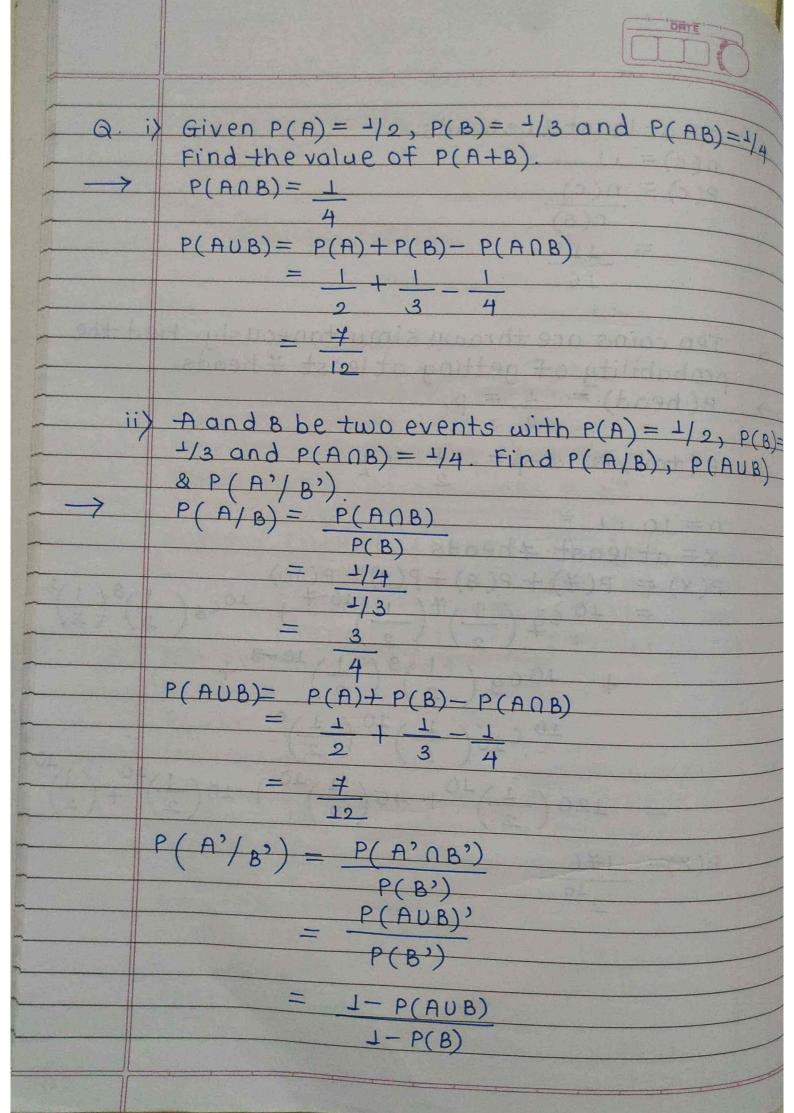
$$= \frac{10}{4} \left(\frac{1}{2} \right)^{\frac{1}{2}} \left(\frac{1}{2} \right)^{\frac{10-\frac{1}{2}}{10-\frac{1}{2}}} + \frac{10}{8} \left(\frac{1}{2} \right)^{\frac{8}{2}} \left(\frac{1}{2} \right)^{\frac{1}{2}}$$

$$+\frac{10}{9}\left(\frac{1}{2}\right)^{9}\left(\frac{1}{2}\right)^{10-9}+$$

$$10 (10(\frac{1}{2})^{10}(\frac{1}{2})^{0}$$

$$= 120\left(\frac{1}{2}\right)^{10} + 45\left(\frac{1}{2}\right)^{10} + 10\left(\frac{1}{2}\right)^{10} + \left(\frac{1}{2}\right)^{10}$$

$$P(X) = \frac{176}{2}$$





$$= \frac{1 - \frac{4}{12}}{1 - \frac{1}{3}}$$

$$= \frac{5}{8}$$

A can hit target 3 times in 5 shots, B 2 times in 5 chats and C 3 times in 4 shots. They have a valley. What is probability that is Two shots hit and 2) at least 2 shots hit the target.

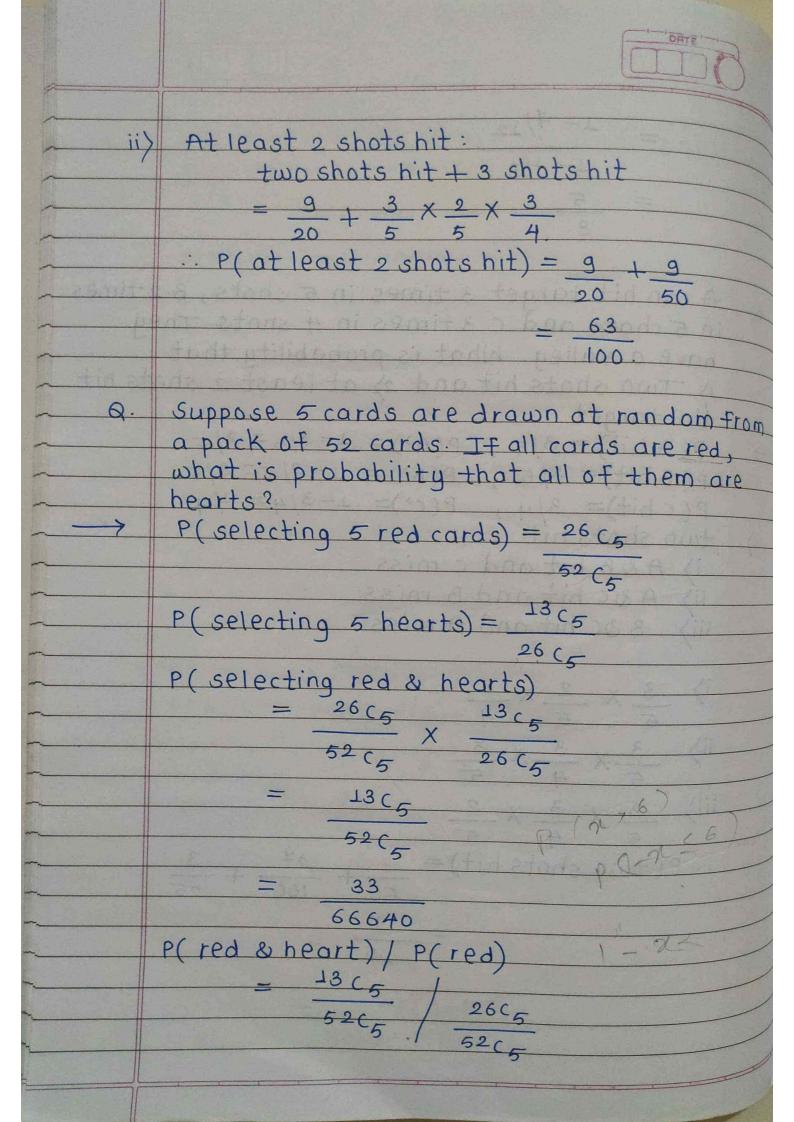
P(A hit) = 3/5, P(A') = 1 - 3/5 = 2/5 P(B hit) = 2/5, P(B') = 1 - 2/5 = 3/5 P(chit) = 3/4, P(C') = 1 - 3/4 = 1/4P(C') = 1 - 3/4 = 1/4

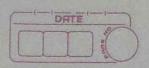
i) A&B hit and c miss
ii) A&C hit and B miss
iii) B&C hit and A miss.

 $\begin{array}{c} i \rangle \quad \frac{3}{5} \times \frac{2}{5} \times \frac{1}{4} \\ ii \rangle \quad \frac{3}{5} \times \frac{3}{4} \times \frac{3}{5} \end{array}$

 $\frac{111}{5} \stackrel{2}{\times} \frac{3}{4} \times \frac{2}{5}$ $= \frac{2}{5} \times \frac{3}{4} \times \frac{2}{5}$

 $P(two shots hit) = \frac{3}{50} + \frac{27}{100} + \frac{3}{25}$





$$= \frac{13_{C_5}}{26_{C_5}}$$

$$= 9$$

$$460.$$

A pair of dice is tossed twice. Find probability of scoring 4 points (i) once (ii) at least once and (iii) twice.

pair of dice is to ssed twice.

$$\left\{ \begin{array}{l} \left\{ \right\}, \left\{ \right\}$$

Total event = 36.

(J) favourable event = $\{1,6\}, \{2,5\}, \{3,4\}, \{4,3\}, \{5,2\}, \{6,1\}.$

once:

$$P(7 \text{ once}) = 6$$
 $= 1$

(2) Probability of getting not $7 = 1 - \frac{1}{6} - \frac{5}{6}$

P(at least once)= 1-P(A')

	MUDA
-	= 1-5
	6
-	= 1
-	6.
(3)	Probability of getting 7 twice
-	$=$ $\frac{6}{5}$ \times $\frac{5}{5}$
4	36 35
-	E L WITH THE THE
-	42 1922 4 31 9316 4 319
-	P. 18 T. 19 18 18 18 18 18 18 18 18 18 18 18 18 18