Chapter 22.

Probability

1) A box contains 600 screws, one-tenth are rusted. One screw is taken out at random from this box. Find the probability that it is a good screw.

→ Given that,

A box contains 600 screws, one-tenth are rusted.

And one screw is taken out at random from this box.

Then, total no. of screws = 600

Rusted screws = $\frac{1}{10}$ of 600 = 60

Thus, good screws remained = 600 − 60 = 540

Thus, probabaility to get a good screw is found to be

$$P(E) = \frac{\text{no. of good screws}}{\text{total screws}} = \frac{540}{600}$$

$\boxed{P(E) = \frac{9}{10}}$ is the required probability.

2) In a lottery, there are 5 prized tickets and 995 blank tickets. A person buys a lottery ticket. find the probability of his winning a prize.

→ Given that,

In a lottery, there are 5 prized tickets and 995 blank tickets.

A person buys a lottery ticket.

Then, no. of prized tickets = 5

Number of blank tickets = 995

Then, total no. of tickets available = 5 + 995 = 1000

Thus, probability of prized ticket is found to be

$$P(E) = \frac{\text{no. of prized ticket}}{\text{total tickets}} = \frac{5}{1000} = \frac{1}{200}$$

$\boxed{P(E) = 1/200}$ is the required probability.

3) 12 defective pens are accidentlly mixed with 132 good ones. It is not possible to just look at a pen and tell whether or not it is defective. One pen is taken out at random from this lot. Determine the probability that the pen taken out is a good one.

→ Given that,

- 12 defective pens are accidentally mixed with 132 good ones.
- It is not possible to just look at a pen and tell whether or not it is defective.
- And one pen is taken out at random from this lot.

Here, no. of defective pens = 12

No. of good pens = 132

Then, total no. of pens = 12 + 132 = 144

Thus, probability to get a good pen is found to be

$$P(E) = \frac{\text{no. of good pens}}{\text{total no. of pens}} = \frac{132}{144} = \frac{11}{12}$$

$\boxed{P(E) = 11/12}$ is the required probability.

4) Two players, Sania and Sonali play a tennis match. It is known that the probability of Sania winning the match is 0·69. What is the probability of Sonali winning?

Given that,

Two players, Sania & Sonali play a tennis match. It is given that, the probability of Sania winning is found to be 0.69.

Let us consider, the probability of Sania's winning the game is $P(E)$.

and $P(\bar{E})$ is the probability of Sania's loosing the game.

Thus, $P(E) + P(\bar{E}) = 1$

$0.69 + P(\bar{E}) = 1$

$P(\bar{E}) = 1 - 0.69 = 0.31 \Rightarrow \boxed{P(\bar{E}) = 0.31}$

Thus, the probability of winning the game for Sonali is found to be 0.31.

5) A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is i) red? ii) not red?

→ Given that,

A bag contains 3 red balls and 5 black balls. And a ball is drawn at random from the bag.

No. of red balls = 3

no. of black balls = 5

Total no. of balls = 3+5 = 8

Let us consider, the probability of finding the red ball is found to be $P(E)$.

Then, $P(\bar{E})$ is the probability of finding the ball which is not red.

Thus, $P(E) + P(\bar{E}) = 1$

i) $P(E) = \frac{\text{no. of red balls}}{\text{total no. of balls}} = \frac{3}{8}$

The probability to get red ball is found to be 3/8.

ii) Now, $P(\bar{E}) = 1 - P(E)$

$= 1 - 3/8 = \frac{8-3}{8}$

$\boxed{P(\bar{E}) = \frac{5}{8}}$ is the probability to get the ball which is not red.

6.) A letter is chosen from the word 'TRIANGLE'. What is the probability that it is a vowel?

→ Given that,

A letter is chosen from the word 'TRIANGLE'.

In given word there are three vowels i.e. I, A, E.

Total no. of letters present in the given word = 8

No. of vowels present in the given word = 3.

Then, probability of chosing a letter that should be a vowel is found to be,

$$P(E) = \frac{\text{no. of vowels}}{\text{total no. of letters}} = \frac{3}{8}$$

$\boxed{P(E) = 3/8}$ is the required probability.

7) A letter of English alphabet is chosen at random. Determine the probability that the letter is a consonant.

→ Given that,

A letter of English alphabet is chosen at random.

Total no. of letters of english alphabet = 26

No. of vowels = 5

Then, no. of consonant = 26 − 5 = 21

Thus, probability to get letter which is consonant is given by

$$P(E) = \frac{\text{no. of consonant}}{\text{total no. of letters}} = \frac{21}{26}$$

$\boxed{P(E) = 21/26}$

9) A bag contains 6 red balls, 8 white balls, 5 green balls and 3 black balls. One ball is drawn at random from the bag. Find the probability that the ball is

i) white
ii) red or black
iii) not green
iv) neither white nor black.

→ Given that,

A bag contains 6 red balls, 8 white balls, 5 green balls and 3 black balls.

And one ball is drawn at random from the bag.

No. of red balls = 6
no. of white balls = 8
no. of green balls = 5
no. of black balls = 3

Total no. of balls in a bag = 22

i) The probability to get the ball which is white is given by

$$P(E) = \frac{\text{no. of white balls}}{\text{total no. of balls}} = \frac{8}{22} = \frac{4}{11}$$

$$\boxed{P(E) = 4/11}$$

ii) The probability to get the ball which is red or black is given by

$$P(E) = \frac{(\text{no. of red balls} + \text{no. of black balls})}{\text{total no. of balls}}$$

$$P(E) = \frac{(6+3)}{22} = \frac{9}{22} \Rightarrow \boxed{P(E) = 9/22}$$

iii) The probability to get the ball which is not green (means it may be red or white or black) is given by

$$P(E) = \frac{(\text{no. of red balls} + \text{no. of white balls} + \text{no. of black balls})}{\text{total no. of balls}}$$

$$P(E) = \frac{(6+8+3)}{22} = \frac{17}{22}$$

$$\boxed{P(E) = 17/22}$$

iv) The probability to get the ball which is neither white nor black is given by

$$P(E) = \frac{(\text{no. of red balls} + \text{no. of green balls})}{\text{total no. of balls}}$$

$$P(E) = \frac{(6+5)}{22} = \frac{11}{22} = \frac{1}{2}$$

$$\boxed{P(E) = 1/2}$$

11.) A die is thrown once. What is the probability that the
i) number is even
ii) number is greater than 2

→ Given that,
A die is thrown once then sample space is given by
$S = \{1, 2, 3, 4, 5, 6\} \Rightarrow n(S) = 6$

i) the numbers which are even $E = \{2, 4, 6\} \Rightarrow n(E) = 3$
Then, probability to get the no. which is even is given by $P(E) = \frac{n(E)}{n(S)} = \frac{3}{6} = \frac{1}{2} \Rightarrow \boxed{P(E) = 1/2}$

ii) the no. which are greater than 2 ⇒
$E = \{3, 4, 5, 6\}$ and $n(E) = 4$
Then, probability to get the no. which is greater than 2 is given by $P(E) = \frac{n(E)}{n(S)} = \frac{4}{6} = \frac{2}{3} \Rightarrow \boxed{P(E) = 2/3}$

13.) A die has 6 faces marked by the given numbers as shown below:

1	2	3	-1	-2	-3

The die is thrown once. What is the probability of getting
i) a positive integer
ii) an integer greater than -3
iii) the smallest integer

Given that, A die has 6 faces marked by the given number as

1	2	3	-1	-2	-3

Total no. of outcomes $n(S) = 6$

i) positive integers $(E) = \{1, 2, 3\} \Rightarrow n(E) = 3$

Thus, the probability of getting a positive integer is found to be $P(E) = \frac{n(E)}{n(S)} = \frac{3}{6} = \frac{1}{2} \Rightarrow \boxed{P(E) = 1/2}$

ii) an integer greater than $-3 \Rightarrow E = \{-2, -1, 3, 2, 1\}$ and $n(E) = 5$

Thus, the probability of getting an integer greater than (-3) is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{5}{6} \Rightarrow \boxed{P(E) = 5/6}$$

iii) the smallest integer $\Rightarrow E = \{-3\}$ and $n(E) = 1$

Thus, the probability of getting the smallest integer is found to be $P(E) = \frac{n(E)}{n(S)} = \frac{1}{6} \Rightarrow \boxed{P(E) = 1/6}$

15) Find the probability that the month of january may have 5 mondays in a) a leap year
b) a non-leap year

→ We know that,

- In the month of january, there are 31 days in an ordinary year.
- In an ordinary year 365 days but in a leap year 366 days are there.

i) In the month of January of an ordinary year there are 31 days i.e. 4 weeks and 3 days.

Then, $\boxed{P(E) = 3/7}$

ii) In the month of January of a leap year, there are 31 days i.e. 4 weeks and 3 days.

$$\boxed{P(E) = 3/7}$$

16.) Find the probability that the month of february may have 5 wednesdays in i) a leap year
ii) a non-leap year.

→ In the month of February, there are 29 days in a leap year while 28 days in a non-leap year.

i) In a leap year, there are 4 complete weeks & 1 day.
Then probability of wednesday ⇒ $\boxed{P(E) = 1/7}$

ii) In a non-leap year, there are 4 complete weeks and 0 days in the month of february.
Then probability of wednesday ⇒ $\boxed{P(E) = 0/7 = 0}$

17.) Sixteen cards are labelled as a, b, c, .., m, n, o, p. They are put in a box and shuffled. A boy is asked to draw a card from the box. What is the probability that the card drawn is i) a vowel
ii) a consonant
iii) none of the letters of the word median

→ Given that,
Sixteen cards are labelled as a, b, c, .., m, n, o, p. They are put in a box and shuffled.
And a boy is asked to draw a card from the box.
Here, Sample space (S) = {a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p}
$n(S) = 16$

i) no. of vowels $E = \{a, e, i, o\}$ $\Rightarrow n(E) = 4$

Then, probability that the card drawn is vowel is given by

$$P(E) = \frac{n(E)}{n(S)} = \frac{4}{16} = \frac{1}{4} \Rightarrow \boxed{P(E) = 1/4}$$

ii) No. of consonants $E = \{b, c, d, f, g, h, j, k, l, m, n, p\}$

$$\boxed{n(E) = 12}$$

Then, probability that the card drawn is consonant is given by $P(E) = \frac{n(E)}{n(S)} = \frac{12}{16} = \frac{3}{4} \Rightarrow \boxed{P(E) = 3/4}$

iii) None of the letters of the word median. $E = \{b, c, f, g, h, j, k, l, o, p\}$

$n(E) = 10$

Then, probability that the card drawn is none of the letters of the word median

$$P(E) = \frac{n(E)}{n(S)} = \frac{10}{16} = \frac{5}{8} \Rightarrow \boxed{P(E) = 5/8}$$

18) An integer is chosen between 0 and 100. What is the probability that it is i) divisible by 7
ii) not divisible by 7

→ Given that,
An integer is chosen between 0 and 100.
Total no. of integers between 0 & 100 = 99

$n(S) = 99$

i) The no. which are divisible by 7:

$E = \{7, 14, 21, 28, 35, 42, 56, 63, 70, 77, 84, 91, 98\}$

$\boxed{n(E) = 14}$

Then, probability to get a no. divisible by 7 is given by

$$P(E) = \frac{n(E)}{n(S)} = \frac{14}{99} \Rightarrow \boxed{P(E) = 14/99}$$

ii) No. which are not divisible by 7 ⇒

$n(E) = 99 - 14 = 85$

Then, probability of getting the no. which is not divisible by 7 is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{85}{99} \Rightarrow \boxed{P(E) = 85/99}$$

20.) There are 25 discs numbered 1 to 25. They are put in a closed box and shaken thoroughly. A disc is drawn at random from the box.

Find the probability that the no. on the disc is

i) an odd no.

ii) divisible by 2 and 3 both

iii) a number less than 16

→ Given that,

There are 25 discs numbered 1 to 25.

They are put in a closed box and shaken thoroughly.

And a disc is drawn at random from the box.

Here, sample space $S = \{1, 2, 3, \ldots, 25\}$ and $n(S) = 25$

i) odd no. betn 1 to 25: $E = \{1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25\}$

$n(E) = 13$

Then, probability to get no. on the disc an odd no. is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{13}{25} \Rightarrow \boxed{P(E) = \frac{13}{25}}$$

ii) No. which are divisible by 2 and 3 both:

$E = \{6, 12, 18, 24\}$ and $n(E) = 4$

Then, the probability to get no. on the disc which is divisible by 2 and 3 is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{4}{25} \Rightarrow \boxed{P(E) = 4/25}$$

iii) No. less than 16 ⇒ $E = \{1, 2, 3, \cdots 15\}$ and $n(E) = 15$
Then, probability to get a no. on the disc which is less than 16 is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{15}{25} = \frac{3}{5} \Rightarrow \boxed{P(E) = 3/5}$$

2.2) Cards bearing numbers 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20 are kept in a bag. A card is drawn at random from the bag. Find the probability of getting a card which is
i) a prime number
ii) a number divisible by 4
iii) a no. that is a multiple of 6
iv) an odd no.

→ Given that,
Cards bearing numbers 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20 are kept in a bag.
A card is drawn at random from the bag.
Here, Sample space $S = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20\}$

$$n(S) = 10$$

i) Prime no. $E = \{2\} \Rightarrow n(E) = 1$
Then, probability of getting a card which is a prime number is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{1}{10} \Rightarrow \boxed{P(E) = 1/10}$$

ii) No. divisible by 4: $E = \{4, 8, 12, 16, 20\}$ and $n(E) = 5$
Then, probability of getting a card which is a no. divisible by 4 is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{5}{10} = \frac{1}{2} \Rightarrow \boxed{P(E) = 1/2}$$

iii) No. which are divisible by 6 or multiples of 6:

$E = \{6, 12, 18\}$ and $n(E) = 3$

Then, probability of getting the no. which is multiple of 6 is found to be $P(E) = \frac{n(E)}{n(S)} = \frac{3}{10} \Rightarrow \boxed{P(E) = 3/10}$

iv) odd no. $E = \{\ \}$ and $n(E) = 0$

Then, probability of getting the no. which is odd no. is found to be $P(E) = \frac{n(E)}{n(S)} = \frac{0}{10} \Rightarrow \boxed{P(E) = 0}$

23.) Cards marked with numbers 13, 14, 15, ..., 60 are placed in a box and mixed thoroughly. One card is drawn at random from the box. Find the probability that the number on the card drawn is i) divisible by 5

ii) a perfect square no.

→ Given that,

Cards marked with numbers 13, 14, 15, ..., 60 are placed in a box and mixed thoroughly.

One card is drawn at random from the box.

Number of card $S = \{13, 14, 15, \ldots, 60\} \Rightarrow n(S) = 48$

i) Cards on which no. which is divisible by 5

$E = \{15, 20, 25, 30, 35, 40, 45, 50, 55, 60\}$ and $n(E) = 10$

Thus, probability that the number on the card drawn is divisible by 5 is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{10}{48} = \frac{5}{24} \Rightarrow \boxed{P(E) = 5/24}$$

ii) Perfect square no. $E = \{16, 25, 36, 49\}$ and $n(E) = 4$

Thus, probability that the no. on the card drawn is a perfect square no. is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{4}{48} = \frac{2}{24} = \frac{1}{12}$$

$$\boxed{P(E) = 1/12}$$

24.) Tickets numbered 3, 5, 7, 9, ..., 29 are placed in a box and mixed thoroughly. One ticket is drawn at random from the box. Find the probability that the no. on the ticket is

a) prime no.

b) a no less than 16

c) a no. divisible by 3

→ Given that,

Tickets numbered 3, 5, 7, 9, ..., 29 are placed in a box & mixed thoroughly.

One ticket is drawn at random from the box.

No. on tickets $S = \{3, 5, 7, 9, \ldots, 29\}$ and $n(S) = 14$

i) $S = \{3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29\}$

i) Prime no. $E = \{3, 5, 7, 11, 13, 17, 19, 23, 29\}$

$n(E) = 9$

Thus, probability that the no. on the ticket is a prime no. is found to be $P(E) = \frac{n(E)}{n(S)} = \frac{9}{14} \Rightarrow \boxed{P(E) = 9/14}$

ii) Numbers less than 16 $E = \{3, 5, 7, 9, 11, 13, 15\}$ & $n(E) = 7$

Thus, probability that the no. on the ticket is a no. less than 16 is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{7}{14} = \frac{1}{2} \Rightarrow \boxed{P(E) = 1/2}$$

iii) Numbers divisible by 3: $E = \{3, 9, 15, 21, 27\}$ and $n(E) = 5$

Thus, probability that the no. on the ticket is divisible by 3 is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{5}{14} \Rightarrow \boxed{P(E) = 5/14}$$

26) A bag contains 15 balls of which some are white and others are red. If the probability of drawing a red ball is twice that of a white ball, find the number of white balls in the bag.

→ Given that,

A bag contains 15 balls of which some are white and other are red.

And probability of drawing a red ball is twice that of a white ball.

Let us consider, the no. of white balls in a bag be 'x'.

Then, no. of red balls in a bag $= (15-x)$

from Given condition,

$$2 \times \frac{(15-x)}{15} = \frac{x}{15}$$

$$2(15-x) = x$$

$$30 - 2x = x$$

$$3x = 30$$

$$\boxed{x = 10}$$

Thus,

The no. of white balls = 10

The no. of red balls = 15 − 10 = 5

27) A bag contains 6 red balls and some blue balls. If the probability of drawing a blue ball is twice that of a red ball, find the no. of balls in the bag.

→ Given that,

A bag contains 6 red balls & some blue balls.

And the probability of drawing a blue ball is twice that of a red ball.

Let us consider, blue balls in no. $= x$

Red balls in no. $= 6$

Total no. of balls $= x+6$

$$P(E_b) = 2P(E_r)$$

$$\frac{x}{(x+6)} = 2\left[\frac{6}{x+6}\right]$$

$\boxed{x = 12}$ are the blue balls in no.

Then, total no. of balls in the bag $= x + 6 = 12 + 6 = 18$

28.> A card is drawn from a well-shuffled pack of 52 cards. Find the probability of getting

i) 2 of spades
ii) a jack
iii) a king of red colour
iv) a card of diamond
v) a king or a queen
vi) a non-face card

→ Given that,
A card is drawn from a well-shuffled pack of 52 cards.

Number of possible outcomes = 52

i) The probability of getting 2 of spades is given by.

$$P(E) = \frac{\text{no. of favourable outcomes}}{\text{total outcomes}} = \frac{1}{52}$$

$$\boxed{P(E) = 1/52}$$

ii) There are total 4 jack present in a card suit.
Then, probability of getting a jack is found to be

$$P(E) = \frac{\text{no. of favourable outcomes}}{\text{total outcomes}} = \frac{4}{52} = \frac{1}{13}$$

$$\boxed{P(E) = 1/13}$$

iii) There are 2 king of red colour in cards.
Then, probability of getting a king of red colour is found to be

$$P(E) = \frac{\text{no. of favourable outcomes}}{\text{total outcomes}} = \frac{2}{52} = \frac{1}{26}$$

$$\boxed{P(E) = 1/26}$$

iv) There are total 13 cards of diamond.
Then, probability of getting a card of diamond is found to be

$$P(E) = \frac{13}{52} = \frac{1}{4} \Rightarrow \boxed{P(E) = 1/4}$$

v) Number of kings or queen = 4+4=8

Then, probability of getting a king or queen is found to be

$$P(E) = 8/52 = \frac{4}{26} = \frac{2}{13}$$

$$\boxed{P(E) = 2/13}$$

vi) There are non-face cards ⇒ 52−(3×4) = 52−12 = 40

Then, probability of getting a non-face card is found to be

$$P(E) = \frac{40}{52} = \frac{20}{26} = \frac{10}{13} \Rightarrow \boxed{P(E) = 10/13}$$

30) All the three face cards of spades are removed from a well-shuffled pack of 52 cards. A card is then drawn at random from the remaining pack. find the probability of getting i) a black face card

ii) a queen

iii) a black card

iv) a heart

→ Given that,

All the three face cards of spades are removed from a well-shuffled pack of 52 cards.

And a card is drawn at random from the remaining pack.

No. of remaining cards = 52−3 = 49 ⇒ n(S) = 49

i) Total black face cards = 6−3 = 3

Then, probability of getting a black face card is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{49} \Rightarrow \boxed{P(E) = 3/49}$$

ii) Number of queens = 4−1 = 3

Then, probability of getting a queen is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{49} \Rightarrow \boxed{P(E) = 3/49}$$

iii) Number of black cards = 26−3 = 23
Then, probability of getting a black card is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{23}{49} \Rightarrow \boxed{P(E) = 13/49}$$

iv) Number of heart = 13
Then, probability of getting a heart card is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{13}{49} \Rightarrow \boxed{P(E) = 13/49}$$

31) from a pack of 52 cards, a blackjack, a red queen and two black kings fell down. A card was then drawn from the remaining pack at random. find the probability that the card drawn is i) a black card ii) a king iii) a red queen

→ Given that,
from a pack of 52 cards, a blackjack, a red queen and two black kings fell down.
And a card is drawn from the remaining pack at random.
The no. of remaining cards = 52−(1+1+2) = 48
$n(S) = 48$

i) Probability of getting a black card is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{23}{48} \Rightarrow \boxed{P(E) = \frac{23}{48}}$$

ii) No. of king = 4−2 = 2
Then, probability of getting a king is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{2}{48} = \frac{1}{24} \Rightarrow \boxed{P(E) = 1/24}$$

iii) No. of red queens = 2−1 = 1
Then, probability of getting a red queen is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{1}{48} \Rightarrow \boxed{P(E) = 1/48}$$

32.) Two coins are tossed once. Find the probability of getting i) 2 heads
ii) at least one tail

→ Given that,
Two coins are tossed.
Sample Space $S = \{HH, HT, TT, TH\}$ and $n(S) = 4$

i) Probability of getting at least 2 heads is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{1}{4} \Rightarrow \boxed{P(E) = 1/4}$$

ii) At least one tail $E = \{HT, TT, TH\}$ and $n(E) = 3$
Then, probability of getting at least one tail is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{4} \Rightarrow \boxed{P(E) = 3/4}$$

34.) Two different dice are thrown simultaneously. Find the probability of getting
i) a number greater than 3 on each dice
ii) an odd number on both dice

→ Given that,
Two different dice are thrown simultaneously.

Sample Space $S = \{(1,1), (1,2), (1,3), (1,4), (1,5), (1,6),$
$(2,1), (2,2), (2,3), (2,4), (2,5), (2,6),$
$(3,1), (3,2), (3,3), (3,4), (3,5), (3,6),$
$(4,1), (4,2), (4,3), (4,4), (4,5), (4,6),$
$(5,1), (5,2), (5,3), (5,4), (5,5), (5,6),$
$(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)\}$

$n(S) = 36$

i) Numbers greater than 3 on each dice
$E = \{(4,4), (4,5), (4,6), (5,4), (5,5), (5,6), (6,4), (6,5),$
$(6,6)\}$ $n(E) = 9$

Then, probability of getting a number greater than an 3 on each dice is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{9}{36} = \frac{1}{4} \Rightarrow \boxed{P(E) = 1/4}$$

ii) odd no. on both dice: $E = \{(1,1), (1,3), (1,5), (3,1), (3,3), (3,5), (5,1), (5,3), (5,5)\}$

$$n(E) = 9$$

Then, probability of getting a odd no. on both dice is found to be $P(E) = \frac{n(E)}{n(S)} = \frac{9}{36} = \frac{1}{4} \Rightarrow \boxed{P(E) = 1/4}$

35.) Two different dice are thrown at the same time. find the probability of getting

i) a doublet ii) a sum of 8

→ Given that,

Two different dice are thrown at the same time.

$$n(S) = 36$$

i) a doublet $\Rightarrow E = \{(1,1), (2,2), (3,3), (4,4), (5,5), (6,6)\}$

and $n(E) = 6$

Then, probability of getting a doublet is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{6}{36} = \frac{1}{6} \Rightarrow \boxed{P(E) = 1/6}$$

ii) sum of 8: $E = \{(2,6), (3,5), (4,4), (5,3), (6,2)\}$

$$n(E) = 5$$

Then, probability of getting a sum of 8 is found to be

$$P(E) = \frac{n(E)}{n(S)} = \frac{5}{36}$$

$$\boxed{P(E) = 5/36}$$