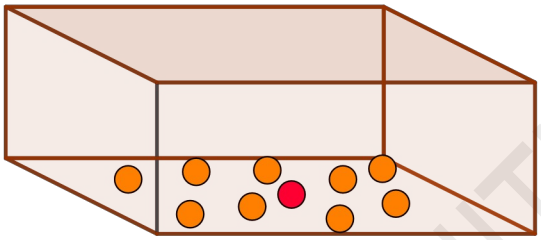
ONLINE MATHS CLASS - X - 28 (27 / 08 /2021)

3 . MATHEMATICS OF CHANCE - CLASS - 1

Can we predict the outcomes of all events accurately before it occur ?

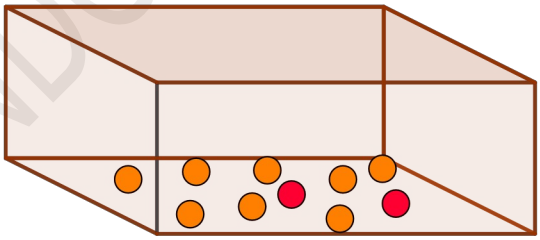
It may not be .

Activity 1



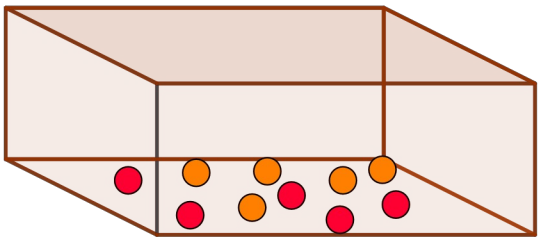
There are 9 orange balls and one rose ball in a box . A ball is taken from it . (without looking) It is most likely to be orange (The number of orange balls is far more than the number of rose ball) .It can be rose though . That is the probability of getting an orange ball is larger .

Activity 2



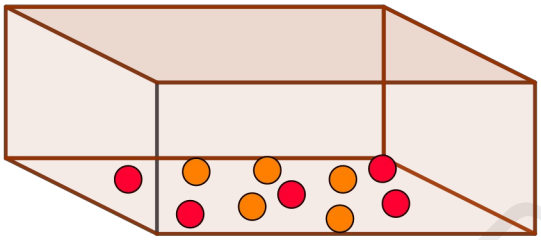
There are 8 orange balls and 2 rose balls in a box . A ball is taken from it . (without looking) It is most likely to be orange . (The number of orange balls is far more more than the number of rose balls) . It can be rose though . That is the probability of getting an orange ball is larger .

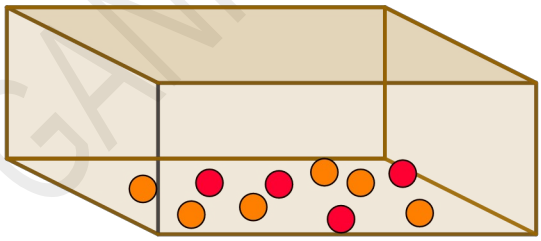
Activity 3



There are 5 orange balls and 5 rose balls in a box . A ball is taken from it . (without looking) . It could be orange or rose since the number of balls are same . That is the probabilities are the same .

Activity 3



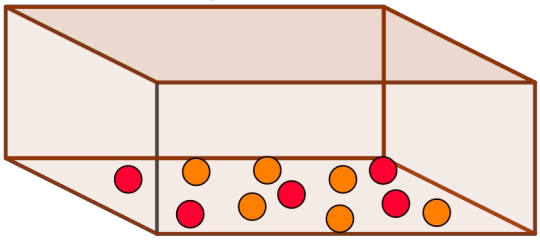


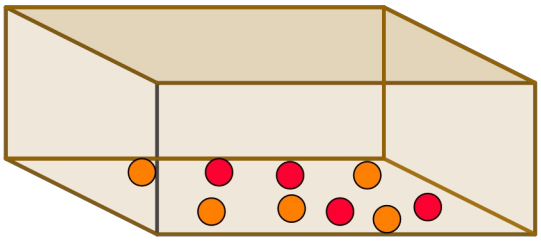
There are 5 orange and 5 rose balls in one box . 6 orange and 4 rose balls in another box

One has to be choose a box and pick a ball .(without looking) Which box is better choice ?

The second box contains more orange balls . So the probability of getting an orange ball is largers than that of a rose ball . Second box is the better choice .

Activity 4





There are 6 orange and 5 rose balls in one box . 5 orange and 4 rose balls in another box

One has to be choose a box and pick a ball .(without looking) Which box is better choice ?

Number of orange balls in the first box = 11

Number of orange balls in the second box = 9

Among the balls in the first box , $\frac{6}{11}$ of the total are orange .

Among the balls in the first box , $\frac{5}{9}$ of the total are orange .

Which is larger , $\frac{6}{11}$ or $\frac{5}{9}$?

$$\frac{6}{11} = \frac{6 \times 9}{11 \times 9} = \frac{54}{99}$$

$$\frac{5}{9} = \frac{5 \times 11}{9 \times 11} = \frac{55}{99}$$ **(Equal fractions)**

$\frac{55}{99}$ **is larger than** $\frac{54}{99}$ **. That is** $\frac{5}{9}$ **is larger than** $\frac{6}{11}$ **.**

That is ,

The probability of getting an orange ball from the first box = $\frac{6}{11}$

The probability of getting an orange ball from the second box = $\frac{5}{9}$

Probability of getting an orange ball from the second box is larger .

Findings

- **Basic feature of mathematics is to analyse and interpret each and every information by converting them into numbers .**
- **Probability theory is the branch of mathematics in which we interpret the chance of the outcome of the situations in terms of the numbers where the accurate prediction is impossible ,**
- **Probability is a number that denotes what part of the total results is the number of favourable results .**

Conclusion

$$Probability = \frac{Number\ of\ favourable\ results}{Number\ of\ total\ results}$$

Activity 5

There are 5 black and 4 white balls in a box . If a ball is taken from it

a) What is the probability of it being black ?

b) What is the probability of it being white ?

Answer

Total number of results = 5 + 4 = 9

a) Probability of the ball being black $= \frac{Number\ of\ favourable\ results}{Number\ of\ total\ results} = \frac{5}{9}$

b) Probability of the ball being white $= \frac{Number\ of\ favourable\ results}{Number\ of\ total\ results} = \frac{4}{9}$