SSLC A+ Questions and Answers English Variant 2018-19

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Bird's Sagacity View .

In our day -to-day life, we usually come across several situations which create doubt about certain happenings and one may want to determine the chance of occurrence of a particular happening. Probability is a mathematical measures of the occurrences of uncertain events.

We proceed to **define some terms** which are essential for the study of probability.

Experiment : An experiment which can produce some well defined outcomes, is known as an experiment.

Trial : Performing of an experiment is called trail.

Event : The outcomes in an experiment are called Event.

Elementary Event: An event having only one outcomes of the experiment is called elementary event..

Equally Likely Event : Events are said to be equally likely , if under the given conditions , we cannot prefer one event to other event.

Exhaustive Event : All the possible outcomes of any trail taken together are called Exhaustive Event.

Favourable Cases : Favorable cases are those which result in occurrence of an event in questions.

Probability (P) = $\dfrac{\text{Number of outcomes favorable to event (F)}}{\text{Tatal number of outcomes (N)}}$

If one thing be in *m* type and the another one be *n* type, then the both of them be together $m \times n$ types.

Geometrical Probability = $\dfrac{\text{The area of the shaded region (small)}}{\text{Area of the total figure (Large)}}$

Pairs Probability = $\dfrac{\text{Number of Favorable pairs}}{\text{Total number of pairs}}$

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Question 1.

From all two digit numbers with each digit 1, 2, 3, 4 or 5 one number is chosen :

(a) What is the probability of both digits being the same ?

(b) What is the probability of the sum of the digits being 8 ?

(c) What is the probability that it is a multiple of 5 ?

Answer:-

Digits = 1, 2, 3, 4 or 5.

Two digits numbers which will formed by 1, 2, 3, 4 and 5 are 11, 12, 13, 14, 15, 21, 22, 23, 24, 25, 31, 32, 33, 34, 35, 41, 42, 43, 44, 45, 51, 52, 53, 54, 55.

Total number of two digits number = 25, N = 25

a) Both digits being the same = 11, 22, 33, 44, 55, F = 5.

$$\text{Probability (P)} = \frac{F}{N} = \frac{5}{25} = \frac{1}{5}$$

b) The sun of digits being 8 = 35, 44, 53, F = 3, N = 25

$$\text{Probability (P)} = \frac{F}{N} = \frac{3}{25}.$$

c) Multiples of 5 = 15, 25, 35, 45, 55. F = 5., N = 25.

$$\text{Probability (P)} = \frac{F}{N} = \frac{5}{25} = \frac{1}{5}.$$

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Question 2.

In th figure , the shaded triangle is drawn by joining by the mid point of the sides of large triangle calculate the probability of a dot on the larger triangle to be within the shaded triangle.

Answer:-

In the figure, successively joind the mid points of the lager triangle sides being made four equal triangles and its area also be equal. In the figure, shaded area of the triangle be the one fourth area of the larger triangle .

Hence the probability of the dot in the shaded triangle be $\dfrac{1}{4}$.

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Question 3.

A bag contains 10 blue balls and 12 yellow balls. Another contains 15 blue balls and 7 yellow balls.

a) What is the probability of getting a yellow ball from the first bag?

b) What is the probability of getting a yellow ball from the second bag?

c) If all the balls are put in a single bag, what is the probability of getting a yellow ball from it?

Answer:-

a)   Total number of balls in the first bag $= 10 + 12 = 22$

Number of yellow balls $= 12$

Probability of getting a yellow ball $= \dfrac{12}{22} = \dfrac{6}{11}$

b)   Total number of balls in the second bag $= 15 + 7 = 22$

Number of a yellow ball $= 7$

Probability of getting a yellow ball $= \dfrac{7}{22}$

c)   Total number of balls $= 22 + 22 = 44$

Number of yellow balls $= 12 + 7 = 19$

Probability of getting a yellow ball $= \dfrac{19}{44}$

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Question 4.

A box contains slips numbered 1, 2, 3, 4. Another box contains slips numbered 1, 2, 3. If one slip is taken from each, what is the probability of getting a sum which is a multiple of three? Also find the probability of getting a sum , which is multiple of 2

Answer:-

The pair of numbers obtained by taking on slip from each box at a time

(1, 1) (2, 1) (3, 1) (4, 1)

(1, 2) (2, 2) (3, 2) (4, 2)   12 Numbers

(1, 3) (2, 3) (3, 3) (4, 3)

pairs having a sum, which is a multiple of 3

(2, 1) (1, 2) (4, 2) (3, 3) – 4 Numbers

$$\text{Probability} = \frac{4}{12} = \frac{1}{3}$$

pairs having a sum, which is a multiple of 2

(1, 1) (3, 1) (1, 3) (2, 2) (3, 3) (4, 2) – 6 Numbers

$$\text{Probability} = \frac{6}{12} = \frac{1}{2}$$

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Question 5

One is asked to say a three digit number . What is the probability that
a) all the digits of the number are same
b) the number is a multiple of 6.

Answer:-

The three digites numbers = 100, 101, 102, 103, 104, ………… 999.
ie., total number of outcomes (N) = 900.
All the three digits are same
ie., 111, 222, 333, 444, …………….., 999.
Number of favorable outcomes (F) = 9.

a) Probability, numbers are same $= \dfrac{F}{N} = \dfrac{9}{900} = \dfrac{1}{100}$.

b) Multiple of 6 b/w 100 to 999.

   ie., 102, 106, 114, 120,…………………….996.

ie., total number of outcomes (N) = 900
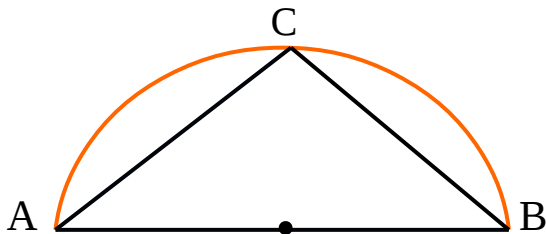
Number of favorable outcomes (F) = 150

Probability of the number is a multiple of 6 $= \dfrac{F}{N} = \dfrac{150}{900} = \dfrac{1}{6}$.

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Question 6.

$\triangle ABC$ is an isosceles right angled triangle in a semicircle of diametr AB. Calculate the probability of a dot, put without looking be within the triangle.

Answer:-

If AB = 2a , AC = BC $= \dfrac{2a}{\sqrt{2}}$

Area of the triangle $= \dfrac{1}{2}bh = \dfrac{1}{2} \times AC \times BC$

$$= \dfrac{1}{2} \times \dfrac{2a}{\sqrt{2}} \times \dfrac{2a}{\sqrt{2}} = 2a^2 .$$

Radius of the circle $= \dfrac{AB}{2} = \dfrac{2a}{2} = a$.

Area of the circle $= \pi r^2 = \pi a^2$

The probability of a dot, be within the triangle $= \dfrac{Area\ of\ the\ triangle}{Area\ of\ the\ circle}$

$$= \frac{2a^2}{\pi a^2} = \frac{2}{\pi} \; .$$

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Question 7.

A bag contain a red ball, a blue ball and a yellow ball, all the balls being of the same size. Krithika takes out a ball from the bag without looking into it . What is the probability that she takes out of the

a) yellow ball

b) red ball

blue ball.

Answer:-

Since Krithika takes out a ball from the bag witout looking into it. So it is equally likely that she takes out any one of them.

a) Let Y be the ball taken is yellow, R be red ball, and B be the ball blue.

The total number of outcomes = 3. (N)

The favorable outcomes in yellow = 1 (F)

Hence the yellow ball probability = $\dfrac{F}{N}$ = $\dfrac{1}{3}$.

Similarly , b) and c) , the answer be $\dfrac{1}{3}$ each.

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Question 8.

A bag contains lemon flavoured candies only. Malathy takes out one candy without looking into the bag. What is the probability that she takes out

a) an orange flavoured candy ?

b) a lemon flavoured candy ?

Answer:-

Since the bag has lemon flavoured candies only.

a) The probability of orange flavoured candy = $\dfrac{Favourable\, flavoured}{Total\, number\, of\, flavours}$

Favorable orange flavoured = 0 (F)

Total number of flavoured = 1 (N)

Hence the probability = $\dfrac{0}{1}$ = 0

b) Lemon Probability = $\dfrac{1}{-}$ = 1.

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Question . 9.

The integers from 1 to 30 inclusive are written on cards (one number on one card) . Thes cards are put in a box and well mixed . Johnny picked up one card . What is the probability that his card has

a) number 7

b) an even number

c) a prim number.

Answer:-

Total number of possible outcomes = 30. (N) ($\because$ there are 30 integers)

a) Favorable outcomes, number 7 = 1 (F) (ie., 1 in number)

 Probability in the number 7 = F/N = 1/30.

b) Total number of even numbr = 2, 4, 6, 8, ………. 30 . F = 15.
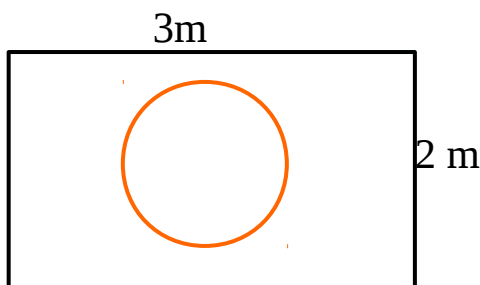
 Probability , an even number = 15/30 = ½ .

c) The prim numbers from 1 to 30 are 2, 3, 5, 7, 11, 13, 17, 19, 23, and 29.

 ie., Favorable outcomes = 10 (F)

 Probability , a prim number = F/N = 10/30 = 1/3.

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Question 10.

Suppose you drop a die at random on the rectangular region shown in the figure . What is the probability that it will land inside the circle with diameter 1m ?.

3m

2 m

Answer:-

Area of the rectangle = $l \times b = 3 \times 2 = 6 \, m^2$. (N)

Diameter = 1m ; radius = ½ m

Aera of the circle = $\pi r^2 = \pi \left(\dfrac{1}{2}\right)^2 = \dfrac{\pi}{4} m^2$ (F)

Probability $= \dfrac{A \, era \, of \, the \, circle}{A \, era \, of \, the \, rec \tan gle} = \dfrac{\frac{\pi}{4}}{6} = \dfrac{\pi}{24}$.

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Question 11.

A bag contains 5 red balls, 8 white balls, 4 green balls and 7 black balls. If one ball is drawn at random , find the probability that it is

a) black ball

b) red ball

c) not green ball.

Answer:-

Total number of outcomes = 5 + 8 + 4 + / = 24. (N)

a) Probability of black balls

   Number of black balls = 7 (F)

   Hence, the probability = F/N = 7/24 .

b) Probability of red balls

   Favourable outcomes = 5 (F)

   Hence, the probability = F/N = 5/24.

c) Total number of green balls = 4.

   Favorable outcomes of green balls = 5 + 8 + 7 = 20. (F)

   Probability of not green balls = F/N = 20/24 = 5/6.

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The End of the Chapter 3. Probability.

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