"ONE LIFE. DARE MORE"

USE CODE: ST26

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Practice Paper Probability

01

In a simultaneous throw of two coins, the probability of not getting a 'head' is

- ○ $\frac{3}{4}$

- ○ $\frac{1}{2}$

- ○ $\frac{1}{4}$

- ○ $\frac{1}{3}$

ANS - (C)

Given :

Two coins are thrown

Concept used:

Total possible outcomes when two coins are thrown in the air are (HH), (HT), (TH), and (TT) i.e a total of 4 cases are possible

Formula used:

Probability P(A) = The number of favorable outcomes/Total number of outcomes

Calculation:

Total number of outcomes = 4

Favourable outcomes = (TT) = 1

Required probability = 1/4

02

A card is drawn at random from a well - known shuffled deck of 52 cards. The probability that is will be a spade or a king is

- ○ $\dfrac{17}{52}$

- ○ $\dfrac{4}{13}$

- ○ $\dfrac{9}{26}$

- ○ $\dfrac{5}{26}$

ANS - (B)

Given:

Total number of cards in a pack = 52

Calculation:

Total number of spades in a pack = 13

Total number of kings in a pack other than spade king = 3

Total number of spades including other three king cards = 13 + 3 = 16

∴ **Required probability = 16/52 = 4/13**

03

In a single throwing of a dice, the probability of getting more than 4 is $\frac{1}{3}$ then probability of getting 4 or less than 4 will be

○ $\frac{1}{3}$

○ $\frac{5}{6}$

○ $\frac{2}{3}$

○ $\frac{1}{6}$

ANS - (C)

Concept:

A probability is a chance of prediction. The formula of the probability of an event is given by

Calculation:

Favorable outcomes of getting 4 or less than 4 = {1, 2, 3, 4} = 4

Total number of outcomes = 6

∴ Probability = 4/6 = 2/3

Hence, the probability of getting 4 or less than 4 is $\frac{2}{3}$.

04

A large basket of fruits contains 3 oranges, 2 apples and 5 bananas. If a piece of fruit is chosen at random, what is the probability of getting an orange or a banana ?

○ $\dfrac{4}{5}$

○ $\dfrac{1}{2}$

○ $\dfrac{7}{8}$

○ $\dfrac{1}{5}$

ANS - (A)

Given:

Number of oranges in the basket = 3

Number of apples in the basket = 2

Number of bananas in the basket = 5

Formula used:

Probability of an event = Number of outcomes that make an event / Total number of outcomes of the experiment (when outcomes are equally likely)

Calculations:

Number of outcomes = Getting either an orange or a banana

Number of outcomes = 3 + 5

$\Rightarrow$ 8

Total number of outcomes = 3 + 2 + 5

$\Rightarrow$ 10

Probability = 8/10

$\Rightarrow$ 4/5

∴ **The probability of getting an orange or a banana is 4/5**

05

There are two bags, one of which contains 5 red and 7 white balls and the other 3 red and 12 white balls. A ball is to be drawn from either of the two bags. What is the chance of drawing a red ball?

○ 35/110

○ 37/120

○ 15/84

○ 21/60

ANS - (B)

Calculation:

Probability of getting red ball from first bag = (1/2) × (5/12)

⇒ 5/24

Probability of getting red ball from second bag = (1/2) × (3/15)

⇒ 1/10

Chance of drawing a red ball = (5/24) + (1/10)

⇒ (25 + 12)/120

⇒ 37/120

∴ **Required probability is 37/120**

06

A and B are two independent events. The probability that both A and B occur is 1/6 and the probability that neither of them occurs is 1/3. Find the probability of occurrence of A.

○ 1/2

○ 1/3

○ Both A and B

○ None of the Above

ANS - (C)

Concept:

If A & B are two events than

The probability that both A and B occur is P(A) P(B)

The probability that neither of them occurs is [1 - P(A)][1 - P(B)]

Calculation:

It is given that

P (A).P (B) = 1/6   -----(1)

$\Rightarrow$ [1 - P (A)] [1 - P (B)] = 1/3

$\Rightarrow$ 1 - P(A) - P(B) + P(A) P(B) = 1/3

From equation (1)

$\Rightarrow$ 1 - [P(A) + P(B)] + 1/6 = 1/3

$\Rightarrow$ P(A) + P(B) = (1 + 1/6) - 1/3

$\Rightarrow$ **P(A) + P(B) = 5/6**   ------(2)

Solving equations (1) & (2), we will get

P(A) = 1/3 or 1/2.

07

A work is assigned to two men whose chances of completing it are 3/4 and 5/6 respectively. What is the probability that the work will be completed?

○ 25/27

○ 23/24

○ 19/24

○ 23/27

ANS - (B)

Formula used:

Probability = Favorable Outcome/Total Outcome.

$P(E) = n(E)/n(S)$

Calculation:

Let A and B be the respective events of completing the assignment and a and b be the respective events of not completing the assignment. Then A and B are independent event

Now, $P(A) = 3/4$ and $P(B) = 5/6$

$P(a) = 1 - (3/4) = 1/4$

$P(b) = 1 - (5/6) = 1/6$

P(Completes the assignment) = 1 - P(not A) and (not B)

$\Rightarrow 1 - (1/4) \times (1/6)$

$\Rightarrow 1 - (1/24) = 23/24$

∴ **The probability that the work will be completed is 23/24**

08

Tickets numbered 1 to 10 were mixed and then one ticket was drawn at random. What is the probability that the ticket drawn has a number that is a multiple of 2?

○ 1/2

○ 20/9

○ 8/13

○ 13/8

ANS - (A)

Formula used:

Probability of occurrence of the event:

$P(E) = \dfrac{n(E)}{n(S)}$

Where,

n(E) = Number of favorable outcome

n(S) = Number of possible outcome

Calculation:

Here, S = {1, 2, 3, 4, ..., 10}.

$\Rightarrow$ n(S) = 10

Let E = event of getting a multiple of 2

= {2, 4, 6, 8, 10}

$\Rightarrow$ n(E) = 5

Hence, the required probability

P(E) = n(E)/n(S) = 5/ 10 = 1/2

∴ The required probability is **1/2**

09

A five digit number is formed with the digits 3, 4, 5, 6 and 7 without repetition. Find the probability that the number is divisible by 5.

○ 4/5

○ 1/5

○ 3/5

○ 2/5

ANS - (B)

Concept:

Divisibility of 5: The last digit(Unit digit) should be 0 and 5.

Formula used:

Probability = Favourable outcomes / Total outcomes

Calculation:

Total digits = 5

Total outcomes = 5!

The last digit may be only 5 only.

Remaining digits = 4

Favorable outcomes = 4!

Probability = 4! / 5! = 4! / (5 × 4!)

$\Rightarrow$ **1 / 5**

$\therefore$ **The probability that the number divisible by 5 is 1/5**

10

A die is thrown. What is the probability that the number shown on the dice is not divisible by 2?

○ 1/2

○ 3/2

○ 1/3

○ 3/1

ANS - (A)

Concept:

Probability = Number of favorable outcomes / Total outcomes

Calculation:

Not divisible by 2,

Favorable outcomes = 1, 3, 5

Number of favorable outcomes **= 3**

The total outcome may be 1, 2, 3, 4, 5, and 6

Total outcomes **= 6**

Probability = 3/6 = **1/2**