



MATHS

BOOKS - HT Olympiad Previous Year Paper

PROBABILITY

Mathematical Reasoning

1. There are 20 cards numbered from 1 to 20. One card is drawn at random. What is the

probability that the number on this card is a multiple of 4 ?

A. $\frac{1}{3}$

B. $\frac{1}{4}$

C. $\frac{3}{4}$

D. $\frac{2}{3}$

Answer: B



Watch Video Solution

2. The probability that a red marble selected at random from a jar containing x red, y blue and z green marbles is _____

A. $\frac{y}{x + y + z}$

B. $\frac{x + z}{x + y + z}$

C. $\frac{x}{x + y + z}$

D. $\frac{y + z}{x + y + z}$

Answer: C



Watch Video Solution

3. One card is drawn from a well shuffled deck of 52 cards . The probability of getting a queen is :

A. $\frac{1}{12}$

B. $\frac{1}{13}$

C. $\frac{1}{50}$

D. $\frac{3}{10}$

Answer: B



Watch Video Solution

4. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of drawing:

'8' of diamond

A. $\frac{5}{52}$

B. $\frac{1}{52}$

C. $\frac{1}{13}$

D. $\frac{1}{26}$

Answer: B



Watch Video Solution

5. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of drawing:

Red ace

A. $\frac{1}{26}$

B. $\frac{2}{26}$

C. $\frac{3}{26}$

D. $\frac{4}{26}$

Answer: A



Watch Video Solution

6. Two dice are thrown simultaneously. What is the probability of obtaining a multiple of 2 on one of them and a multiple of 3 on the other

A. $\frac{5}{36}$

B. $\frac{5}{12}$

C. $\frac{11}{36}$

D. $\frac{1}{12}$

Answer: C



Watch Video Solution

7. The given table shows the ages (in years) of 360 patients, getting medical treatment in a hospital.

Age (in years)	10-20	20-30	30-40	40-50	50-60	60-70
No. of patients	90	50	60	80	50	30

One of the patients is selected at random. The probability that the selected patient's age is 30 years or more but less than 40 years, is

A. $a = \frac{1}{6}, b = \frac{2}{9}$

B. $a = \frac{1}{6}, b = 0$

C. $a = \frac{2}{9}, b = 1$

$$D. a = \frac{1}{6}, b = 1$$

Answer: D



Watch Video Solution

8. A die is thrown once. The probability of getting a number less than 1 is _____

A. $\frac{1}{2}$

B. $\frac{1}{3}$

C. $\frac{2}{3}$

D. 0

Answer: D



Watch Video Solution

9. Without looking at any page, a number is chosen at random from the page. What is the probability that the digit at the units place of the number chosen is greater than 6 ?

A. $\frac{3}{10}$

B. $\frac{6}{10}$

C. $\frac{4}{10}$

D. None of these

Answer: A



Watch Video Solution

10. An urn contains 11 oranges, 8 mangoes and 13 apples. A fruit is drawn at random. What is the probability of not drawing an apple ?

A. $\frac{15}{32}$

B. $\frac{19}{32}$

C. $\frac{11}{32}$

D. $\frac{13}{32}$

Answer: B



Watch Video Solution

11. Three coins are tossed simultaneously 1000 times. The following outcomes are recorded:

Number of heads	0	1	2
Frequency	200	250	550

Find the probability of getting atmost one head.

A. $\frac{1}{25}$

B. $\frac{7}{20}$

C. $\frac{9}{20}$

D. $\frac{5}{24}$

Answer: C



Watch Video Solution

12. A card is drawn at random from a well shuffled pack of 52 cards. Find the probability that the card drawn is neither a red card nor a queen.

A. $\frac{6}{13}$

B. $\frac{5}{13}$

C. $\frac{4}{13}$

D. $\frac{2}{13}$

Answer: A



Watch Video Solution

13. A city survey found that 47% of teenagers have a part time job. The same survey found that 30% plan to attend college. Find the probability that a teenager has a part time job.

A. $\frac{37}{100}$

B. $\frac{30}{100}$

C. $\frac{40}{100}$

D. $\frac{47}{100}$

Answer: D



Watch Video Solution

Everyday Mathematics

1. Ram and Priya are playing a game. Ram's winning probability is $\frac{1}{3}$ and sum of their winning probabilities is 1. Numerator of Priya's winning probability is _____

A. 0

B. 1

C. $\frac{1}{3}$

D. None of these

Answer: D



Watch Video Solution

2. In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize ?

A. $10 / 35$

B. $25 / 35$

C. $15 / 35$

D. None of these

Answer: A



Watch Video Solution

3. Tanya has the following coins in her pocket:

Rs 1, Rs 2, Rs 5, Rs 10

She selects one coin at random to put in a

charity collection box. What is the probability that she:

(i) gives more than 20 paise ?

(ii) give less than Rs 5 ?

A. (i) 1, (ii) $\frac{1}{2}$

B. (i) $\frac{1}{2}$, (ii) 1

C. (i) $\frac{3}{4}$, (ii) $\frac{1}{2}$

D. (i) 1, (ii) $\frac{3}{4}$

Answer: A



Watch Video Solution

4. In a sports academy, there are 20 balls, including 5 footballs. What is the probability that a randomly selected ball will be a football ?

A. $\frac{1}{3}$

B. $\frac{3}{2}$

C. $\frac{1}{4}$

D. 1

Answer: C



Achievers Section Hots

1. Two coins are tossed simultaneously. Find P, Q and R respectively.

	Number of heads	Required probability
(i)	0	P
(ii)	1	Q
(iii)	2	R

A. $\frac{1}{2}, \frac{1}{4}, \frac{1}{4}$

B. $\frac{1}{4}, \frac{1}{4}, \frac{1}{2}$

C. $\frac{1}{4}, \frac{1}{2}, \frac{1}{4}$

D. $\frac{1}{2}, \frac{1}{2}, \frac{1}{4}$

Answer: C



Watch Video Solution

2. A company selected 4000 households at random and surveyed them to find out a relationship between income level and the number of AC sets in their home. The information so obtained, is shown here.

Monthly income (in ₹)	Number of AC/household			
	0	1	2	Above 2
<10000	20	80	10	0
10000-14999	10	240	60	0
15000-19999	0	380	120	30
20000-24999	0	520	370	80
25000 and above	0	1100	760	220

Find the probability of households :

(a) earning Rs (15000-19999) per month and having more than one AC.

(b) earning Rs 25000 and more per month and having exactly one AC.

(c) not having any AC.

$$A. a = \frac{1}{8}, b = \frac{11}{40}, c = \frac{1}{200}$$

$$B. a = \frac{3}{80}, b = \frac{17}{40}, c = \frac{3}{400}$$

$$\text{C. } a = \frac{1}{8}, b = \frac{17}{40}, c = \frac{1}{200}$$

$$\text{D. } a = \frac{3}{80}, b = \frac{11}{40}, c = \frac{3}{400}$$

Answer: D



Watch Video Solution

3. Which of the following statements is CORRECT ?

Cards marked with the numbers 2 to 101 are put in a box and mixed thoroughly. One card is drawn from the box.

Statement-1 : Probability of odd prime numbers between 10 and 25 is $\frac{1}{20}$.

Statement-2 : Probability of perfect cube is $\frac{1}{25}$

- A. Only Statement-1
- B. Only Statement-2
- C. Both Statement-1 and Statement-2
- D. Neither Statement-1 nor Statement-2

Answer: A



Watch Video Solution