



MATHS

BOOKS - HT Olympiad Previous Year Paper

PROBABILITY

Mathematical Reasoning

1. Find the probability of getting 53 Fridays in a leap year.

A. $\frac{3}{7}$

B. $\frac{4}{7}$

C. $\frac{2}{7}$

D. $\frac{5}{7}$

Answer: C



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2. There are 100 cards in a bag on which numbers from 1 to 100 are written. A card is taken out from the bag at random. Find the

probability that the number on the selected card is divisible by 9 and is a perfect square.

A. $\frac{9}{100}$

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

C. $\frac{7}{100}$

D. $\frac{3}{100}$

Answer: D



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3. When two dice are thrown, the probability of getting a number always greater than 4 on the second dice is _____.

A. $\frac{1}{6}$

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

C. $\frac{1}{36}$

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

Answer: B



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4. Three cards of spades are lost from a pack of 52 playing cards. The remaining cards were well shuffled and then a card was drawn at random from them. Find the probability that the drawn card is of black colour.

A. $\frac{26}{49}$

B. $\frac{23}{49}$

C. $\frac{13}{26}$

D. $\frac{23}{52}$

Answer: B



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5. Two dice are thrown at a time. The probability that the difference of the numbers shown on the dice is 1 is_____.

A. $\frac{5}{18}$

B. $\frac{1}{36}$

C. $\frac{1}{6}$

D. $\frac{1}{18}$

Answer: A



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6. Three dice are thrown at the same time.

What is the probability that the sum of three numbers that turn up is 15?

A. $\frac{11}{216}$

B. $\frac{5}{108}$

C. $\frac{9}{216}$

D. $\frac{1}{18}$

Answer: B



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7. A bag contains three green, four blue and two orange marbles. If a marble is picked at random, then the probability that it is not an orange marble, is _____.

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

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

C. $\frac{4}{9}$

D. $\frac{7}{9}$

Answer: D



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8. Two friends were born in the year 1996. The probability that they have the same birth date is

A. $\frac{1}{183}$

B. $\frac{2}{365}$

C. $\frac{1}{365}$

D. $\frac{1}{366}$

Answer: D



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9. Five cards-the ten, jack, queen, king and ace of diamonds, are well-shuffled with their face downwards. If the queen is drawn and put aside, one card is then picked up at random. Find the probability that the second card picked up is

(i) a king (ii) a queen

A. (i) - $1/4$ (ii) - 0

B. (i) $1/2$ (ii) - 0

C. (i) $1/13$ (ii) - 0

D. (i) $1/3$ (ii) $1/2$

Answer: A



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10. A letter is chosen at random from the letters of the word 'ASSOCIATION'. Find the probability that the chosen letter is a vowel.

A. $\frac{3}{11}$

B. $\frac{5}{11}$

C. $\frac{6}{11}$

D. $\frac{7}{11}$

Answer: C



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11. A card is drawn at random from a pack of 52 cards. The probability that the drawn card is not a king is

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

B. $\frac{9}{13}$

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

D. $\frac{12}{13}$

Answer: D



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12. A jar contains 54 marbles each of which is blue, green or white. The probability of selecting a blue marble at random from the jar

is $\frac{1}{3}$, and the probability of selecting a green marble at random is $\frac{4}{9}$. How many white marbles does the jar contain?

A. 12

B. 6

C. 9

D. 11

Answer: A



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13. A number is selected at random from first 50 natural numbers. What is the probability that it is a multiple of 4 or 5?

A. $\frac{9}{25}$

B. $\frac{2}{5}$

C. $\frac{6}{25}$

D. $\frac{23}{50}$

Answer: B



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1. A game consists of tossing a one rupee coin three times and noting its outcome each time. Hanif wins if all the tosses give the same result, i.e., three heads or three tails and loses otherwise. Calculate the probability that Hanif will lose the game.

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

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

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

D. $\frac{5}{8}$

Answer: C



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2. 250 lottery tickets were sold and there are 5 prizes on these tickets. If Kunal has purchased one lottery ticket, what is the probability that he wins a prize?

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

B. $\frac{1}{125}$

C. $\frac{3}{125}$

D. $\frac{3}{50}$

Answer: A



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3. Two customers Shyam and Ekta are visiting a particular shop in the same week (Tuesday to Saturday). Each is equally likely to visit the shop on any one day as on another. What is

the probability that both will visit the shop on different days?

A. $\frac{3}{5}$

B. $\frac{4}{5}$

C. $\frac{12}{25}$

D. $\frac{1}{5}$

Answer: B



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4. Honey goes to school by a car driven by his driver or uses his bicycle. Probability that he will use the car is $\frac{3}{7}$. What is the probability that he will use his bicycle for going to the school?

A. $\frac{1}{7}$

B. $\frac{6}{7}$

C. $\frac{4}{7}$

D. $\frac{5}{7}$

Answer: C

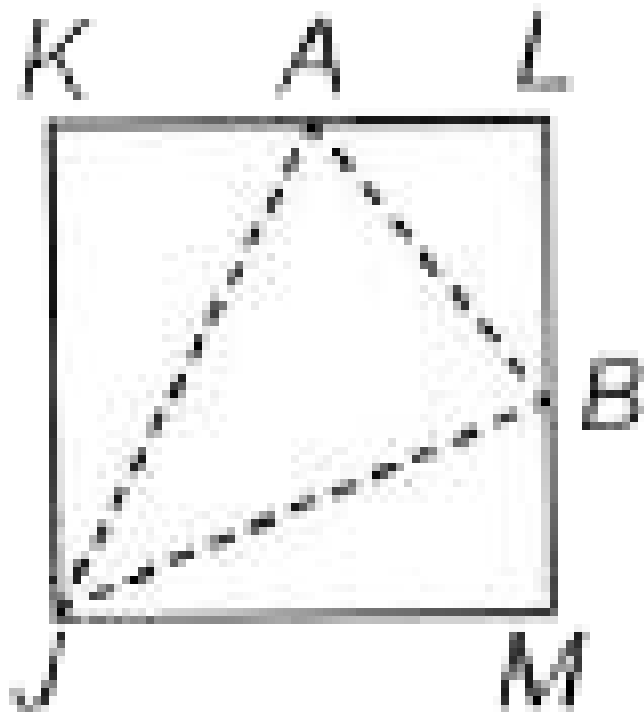


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Achievers Section Hots

1. In the given figure. JKLM is a square with sides of length 6 units. Points A and B are the mid-points of sides KL and LM respectively. If a point is selected at random from the interior of the square. What is the probability that the point will be chosen from the interior of

$\Delta JAB?$



A. $\frac{5}{8}$

B. $\frac{7}{8}$

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

D. 3/8

Answer: D



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2. Two dice are thrown simultaneously. Match the events given in Column-I to their

probabilities given in Column-II.

	Column - I	Column - II
(P)	Sum as prime number	(i) $\frac{11}{36}$
(Q)	Multiple of 2 on one dice and multiple of 3 on other dice	(ii) $\frac{1}{12}$
(R)	Total of atleast 10	(iii) $\frac{5}{12}$
(S)	Doublet of even numbers	(iv) $\frac{1}{6}$

A. $P \rightarrow (iv), Q \rightarrow (i), R \rightarrow (iii), S \rightarrow (ii)$

B. $P \rightarrow (iv), Q \rightarrow (iii), R \rightarrow (i), S \rightarrow (ii)$

C. $P \rightarrow (iii), Q \rightarrow (ii), R \rightarrow (iv), S \rightarrow (i)$

D. $P \rightarrow (iii), Q \rightarrow (i), R \rightarrow (iv), S \rightarrow (ii)$

Answer: D



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3. Fill in the blanks.

(i) In a single throw of a dice, the probability of getting a number greater than 2 is \underline{P} .

(ii) A card is drawn from a deck of 52 cards. The probability of drawing a red card is \underline{Q} and a face card is \underline{R} .

(iii) A bag contains 2 blue and 3 green marbles, then the probability of drawing a red marble \underline{S} .

- A. $\begin{array}{cccc} P & Q & R & S \\ \frac{1}{3} & \frac{11}{26} & \frac{2}{11} & 1 \end{array}$
- B. $\begin{array}{cccc} P & Q & R & S \\ \frac{1}{6} & \frac{1}{4} & \frac{3}{11} & 0 \end{array}$
- C. $\begin{array}{cccc} P & Q & R & S \\ \frac{2}{3} & \frac{1}{2} & \frac{3}{13} & 0 \end{array}$
- D. $\begin{array}{cccc} P & Q & R & S \\ \frac{2}{3} & \frac{1}{2} & \frac{3}{13} & \frac{3}{5} \end{array}$

Answer: C



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