| Ques No.	Question
1	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 1** Given that E and F are events such that $P(E) = 0.6$, $P(F) = 0.6$, $P(F) = 0.3$ and $P(E \cap F) = 0.2$, find $P(E \mid F)$ and $P(F \mid E)$. ▶ Watch Free Video Solution on Doubtnut
2	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 2** Compute $P(A \mid B)$. if $P(B) = 0.5$ and $P(A \cap B) = 0.32$ ▶ Watch Free Video Solution on Doubtnut
3	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 3** If $P(A) = 0.8$, $P(B) = 0.5$ and $P(B \mid A) = 0.4$, find (i) $P(A \cap B)$ (ii) $P(A \mid B)$ (iii) $P(A \cup B)$ ▶ Watch Free Video Solution on Doubtnut
4	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 4** Evaluate $P(A \cup B)$, if $2P(A) = P(B) = \dfrac{5}{13}$ and $P(A \mid B) = \dfrac{2}{5}$ ▶ Watch Free Video Solution on Doubtnut
5	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 5** If $P(A) = \dfrac{6}{11}$, $P(B) = \dfrac{5}{11}$ and $P(A \cup B) = \dfrac{7}{11}$, find (i) $P(A \cap B)$ (ii) $P(A \mid B)$ (iii) $P(B \mid A)$ ▶ Watch Free Video Solution on Doubtnut
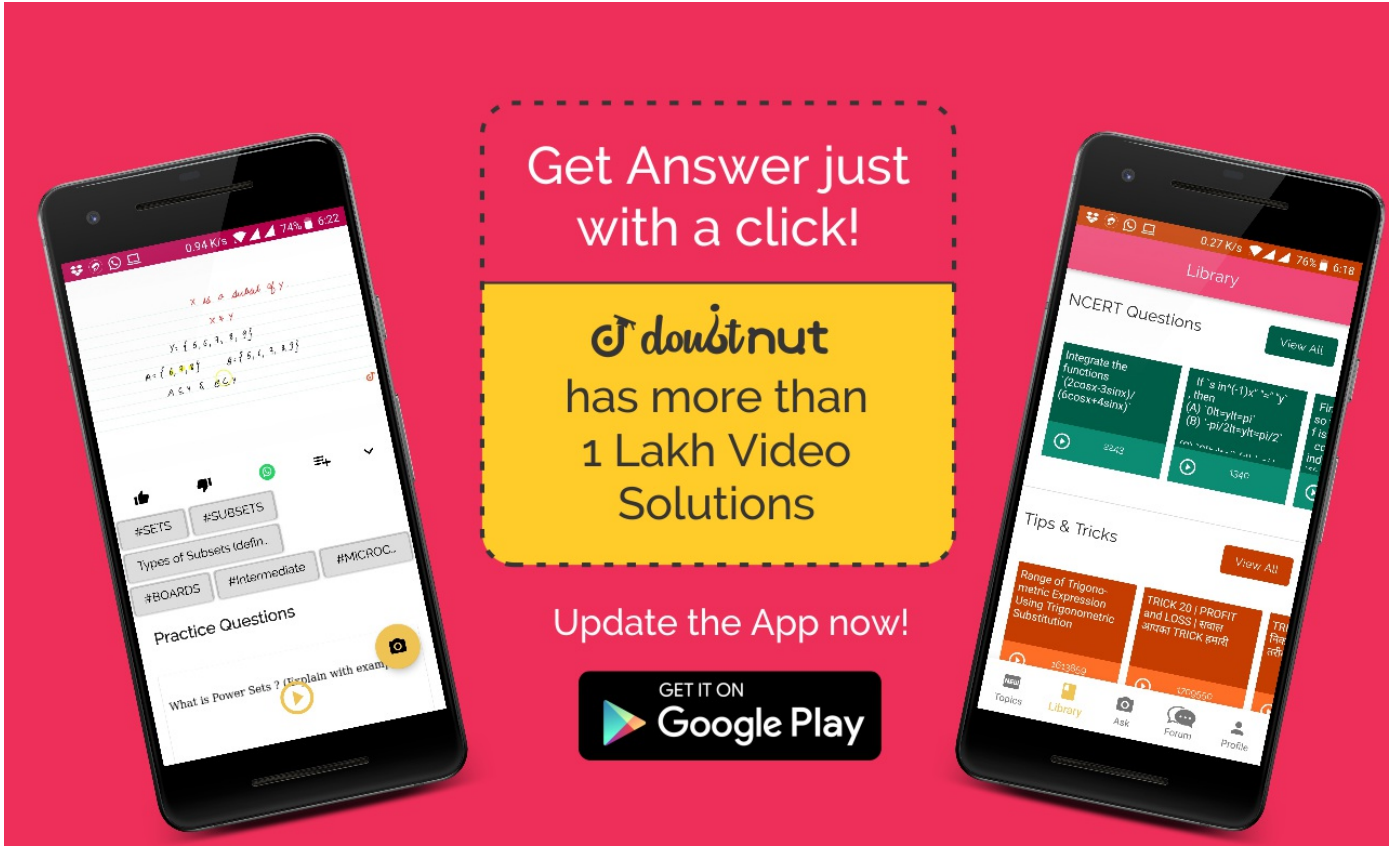
NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 6

Determine $P\ \ (E \mid F)$ in : A coin is tossed three times, where (i) E : Head on third toss, F : heads on first two tosses (ii) E : at least two heads, F : at most two heads (iii) E : at most two tails, F : at least one tail

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 7

Determine $P\ \ (E \mid F)$ in : Two coins are tossed once, where (i) E: tail appears on one coin, F : one coin shows head (ii) E : no tail appears, F : no head appears

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 8

Determine P (E|F) in : A die is thrown three times, E : 4 appears on the third toss, F: 6 and 5 appears respectively on first two tosses

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 9

Determine P (E|F) in : Mother father and son line up at random for a family picture E: son on one end.   F: father in middle

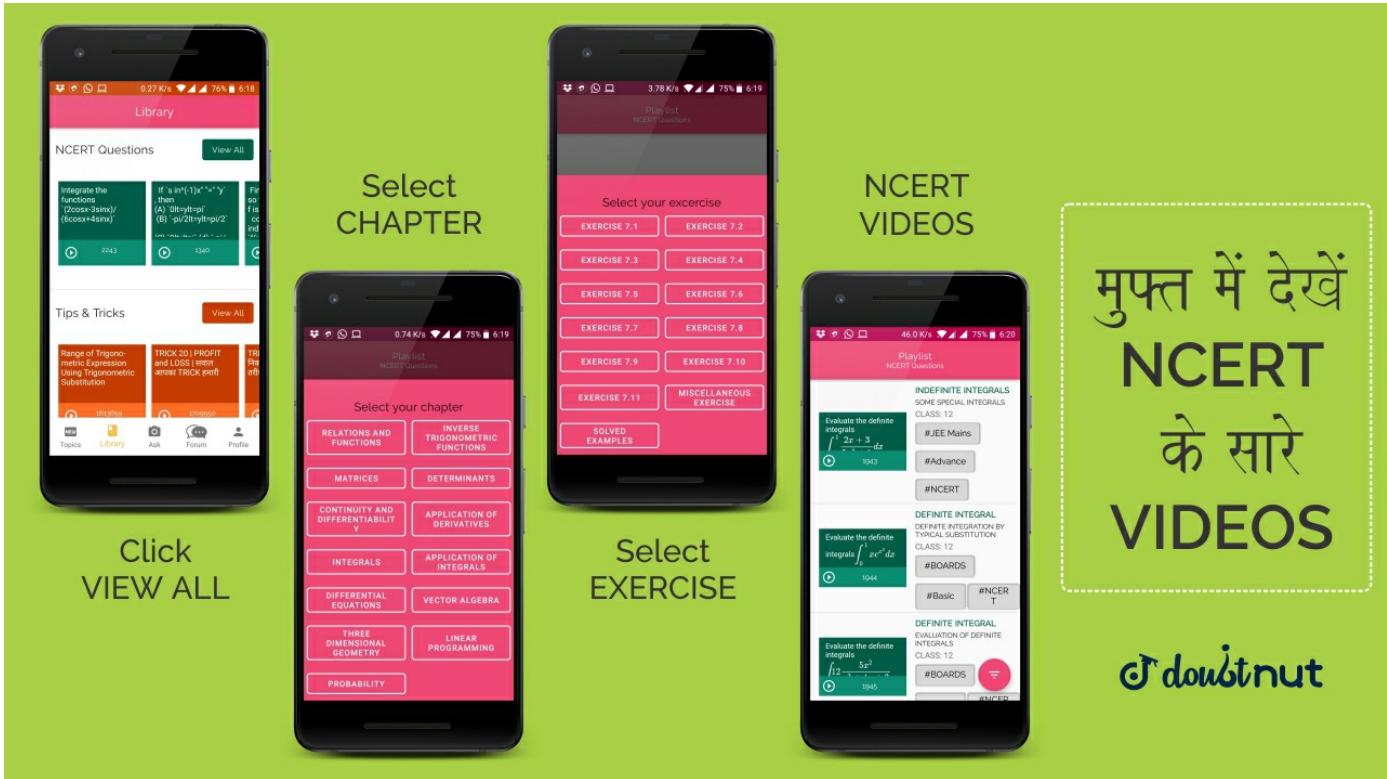▶ Watch Free Video Solution on Doubtnut

NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 10

A black and a red dice are rolled. (a)   Find the conditional probability of obtaining a sum greater than 9. Given that the black die resulted in a 5. (b)   Find the conditional probability of obtaining the sum 8? given that the red die resulted in a number less than 4.

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11	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 11** A fair die is rolled. Consider events $E = \{1, \ 3, \ 5\}$, $F = \{2, \ 3\}$ and $G = \{2, \ 3, \ 4, \ 5\}$ Find (i) $P(E \mid F)$ and $P(F \mid E)$ (ii) $P(E \mid G)$ and $P(G \mid E)$ (iii) $P((E \cup F) \mid G)$ and $P((E \cap F) \mid G)$ ⊙ Watch Free Video Solution on Doubtnut
12	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 12** Assume that each born child is equally likely to be a boy or a girl . If a family has two children, what is the conditional probability that both are girls given that (i) the youngest is a girl (ii) at least one is a girl? ⊙ Watch Free Video Solution on Doubtnut
13	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 13** An instructor has a question bank consisting of 300 easy True / False questions. 200 difficult True / False questions. 500 easy multiple choice questions and 400 difficult multiple choice questions. If a question is selected at random from the question bank, what is the probability that it will be an easy question given that it is a multiple choice question? ⊙ Watch Free Video Solution on Doubtnut
14	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 14** Given that the two numbers appearing on throwing two dice are different. Find the probability of the event the sum of numbers on the dice is 4. ⊙ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 15 Consider the experiment of throwing a die. if a multiple of 3 comes tip. throw the die again and if any other number comes, toss a coin Find the conditional probability of

15	the event the coin shows a tail, given that at least one die shows a 3. ▶ Watch Free Video Solution on Doubtnut
16	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 16** In each of the Exercises choose the correct answer: If $P(A) = \dfrac{1}{2}$, $P(B) = 0$, then $P(A \mid B)$ is (a) 0 (b) $\dfrac{1}{2}$ (c) not defined (d) 1 ▶ Watch Free Video Solution on Doubtnut
17	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.1 - Q 17** In each of the Exercises choose the correct answer: If A and B are events such that P(A|B), then (a) $A \subset B$ but $A \neq B$ (b) $A = B$ (c) $A \cap B = \varphi$ (d) $P(A) = P(B)$ ▶ Watch Free Video Solution on Doubtnut
18	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 1** If $P(A) = \dfrac{3}{5}$ and $P(B) = \dfrac{1}{5}$, find $P(A \cap B)$ if A and B are independent events. ▶ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 2 Two cards are drawn at random and without replacement from a pack of 52 playing

19	cards. Find the probability that both the cards are black.
	▶ Watch Free Video Solution on Doubtnut
20	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 3**
	A box of oranges is inspected by examining three randomly selected oranges drawn without replacement. If all the three oranges are good, die box is approved for sale, otherwise, it is rejected. Find the probability that a box containing 15 oranges out of which 12 are good and 3 are bad ones will be approved for sale.
	▶ Watch Free Video Solution on Doubtnut
21	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 4**
	A fair coin and an unbiased die are tossed. Let A be the event head appears on the coin and B be the event 3 on the die. Check whether A and B are independent events or not.
	▶ Watch Free Video Solution on Doubtnut
22	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 5**
	A die marked 1, 2, 3 in red and 4, 5, 6 in green is tossed. Let A be the event, the number is even, and B be the event, the number is red. Are A and B independent?
	▶ Watch Free Video Solution on Doubtnut
23	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 6**
	Let E and F be events with $P\ (E)\ =\dfrac{3}{5}$, $P\ (F)\ =\dfrac{3}{10}$ and $P(E \cap F) = \dfrac{1}{5}$. Are E and F independent?
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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 7

24	Given that the events A and B are such that $P(A) = \dfrac{1}{2}$, $P(A \cap B) = \dfrac{3}{5}$ and $P(B) = p$. Find p if they are (i) mutually exclusive (ii) independent. ▶ Watch Free Video Solution on Doubtnut
25	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 8** Let A and B be independent events with $P(A) = 0.3$ and $P(B) = 0.4$ Find (i) $P(A \cap B)$ (ii) $P(A \cup B)$ (iii) $P(A \mid B)$ (iv) $P(B \mid A)$ ▶ Watch Free Video Solution on Doubtnut
26	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 9** If A and B are two events such that $P(A) = \dfrac{1}{4}$, $P(B) = \dfrac{1}{2}$ and $P(A \cap B) = \dfrac{1}{8}$, find P (not A and not B). ▶ Watch Free Video Solution on Doubtnut
27	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 10** If A and B are two events such that $P(A) = \dfrac{1}{2}$, $P(B) = \dfrac{7}{12}$ and P(not A or not B) = $\dfrac{1}{4}$. State whether A and B are independent? ▶ Watch Free Video Solution on Doubtnut
28	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 11** Given two independent events A and B such that $P(A) = 0.3$, $P(B) = 0.6$. Find (i) P(A and B) (ii) P(A and not B) (iii) P(A or B) (iv) P(neither A nor B) ▶ Watch Free Video Solution on Doubtnut
29	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 12** A die is tossed thrice. Find the probability of getting an odd number at least once. ▶ Watch Free Video Solution on Doubtnut

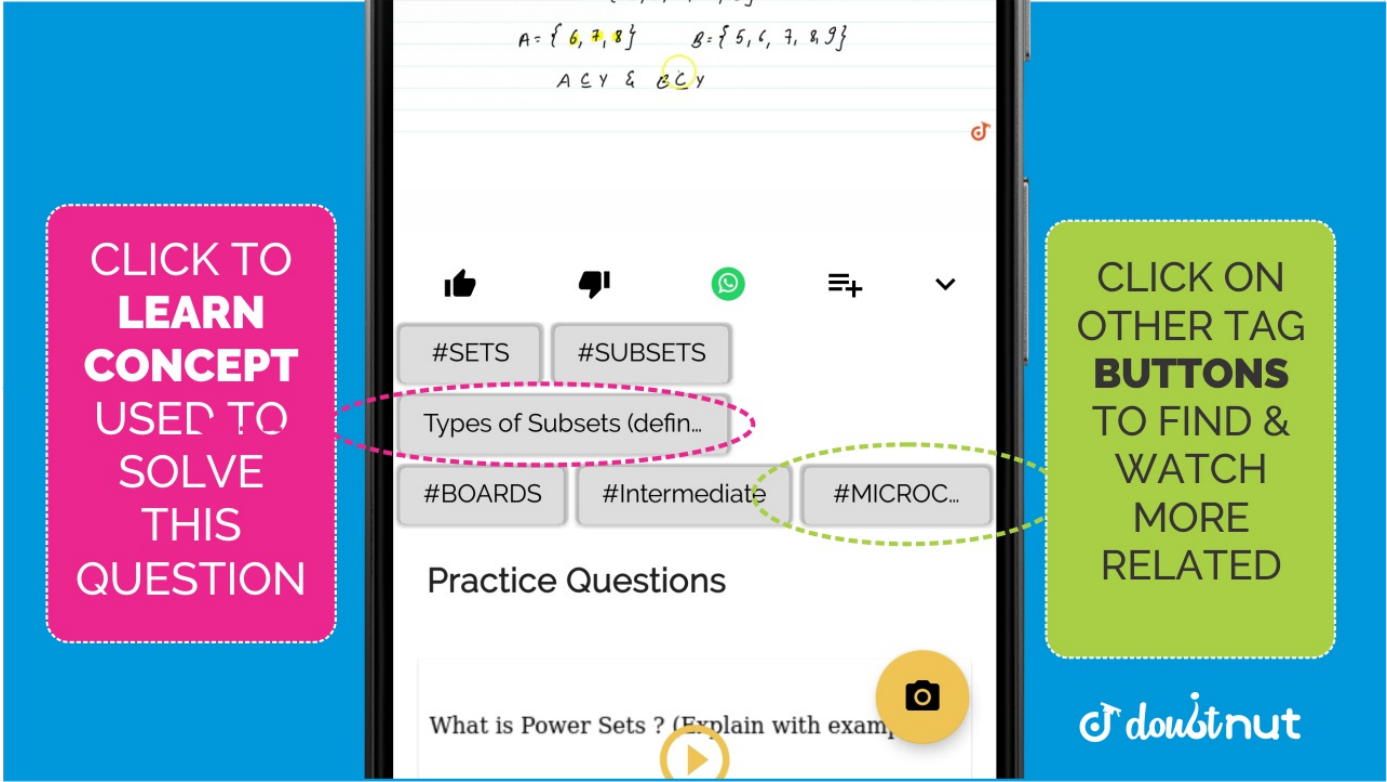| 30	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 13** Two balls are drawn at random with replacement from a box containing 10 black and 8 red balls. Find the probability that (i)　　both balls are red. (ii)　　first ball is black and second is red. (iii)　　one of them is black and other is red. ▶ Watch Free Video Solution on Doubtnut
31	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 14** Probability of solving specific problem independently by A and B are $\frac{1}{2}$ and $\frac{1}{3}$ respectively. If both try to solve the problem independently find the probability that (i) the problem is solved (ii) exactly one of them solves the problem. ▶ Watch Free Video Solution on Doubtnut
32	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 15** One card is drawn at random from a well shuffled deck of 52 cards. In which of the following cases are the events E and F independent? (i)　　E : the card drawn is a spade F : the card drawn is an ace (ii)　　E : the card drawn is black F : the card drawn is a king (iii)　　E : the card drawn is a king or queen F : the card drawn is a queen or jack. ▶ Watch Free Video Solution on Doubtnut
33	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 16** In a hostel 60% of the students read Hindi news paper, 40% read English news paper and 20% read both Hindi and English news papers. A student is selected at random. (a)　　Find the probability that she reads neither Hindi nor English news papers. (b)　　If she reads Hindi news paper, find the probability that she reads English news paper. (c)　　If she reads English news paper, find the probability that she reads Hindi news paper. ▶ Watch Free Video Solution on Doubtnut

34	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 17** The probability of obtaining an even prime number on each die, when a pair of dice is rolled is (A) 0 (B) $\dfrac{1}{3}$ (C) $\dfrac{1}{12}$ (D) $\dfrac{1}{36}$ ▶ Watch Free Video Solution on Doubtnut
35	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.2 - Q 18** Two events A and B will be independent, if (A) A and B are mutually exclusive (B) $P(A'B') = [1 - P(A)][1 - P(B)]$ (C) $P(A) = P(B)$ (D) $P(A) + P(B) = 1$ ▶ Watch Free Video Solution on Doubtnut

36	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 1** An urn contains 5 red and 5 black balls. A ball is drawn at random, its colour is noted and is returned to the urn. Moreover, 2 additional balls of the colour drawn are put in the urn and then a ball is drawn at random. What is the probability that the second ball is red? ▶ Watch Free Video Solution on Doubtnut
37	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 2** A bag contains 4 red and 4 black balls, another bag contains 2 red and 6 black balls. One of the two bags is selected at random and a ball is drawn from the bag which is found to be red. Find the probability that the ball is drawn from the first bag. ▶ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 3 Of the students in a college, it is known that 60% reside in hostel and 40% are day scholars (not residing in hostel). Previous year results report that 30% of all students who reside in hostel attain A grade and 20% of day scholars attain A grade in their

38	annual examination. At the end of the year, one student is chosen at random from the college and he has an A grade, what is the probability that the student is a hostlier? ▶ Watch Free Video Solution on Doubtnut
39	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 4** In answering a question on a multiple choice test, a student either knows the answer or guesses. Let $\frac{3}{4}$ be the probability that he knows the answer and $\frac{1}{4}$ be the probability that he guesses. Assuming that a student who guesses at the answer with probability 1/4. what is the probability that the student knows the answer given that he answers correctly.? ▶ Watch Free Video Solution on Doubtnut
40	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 5** A laboratory blood test is 99% effective in detecting a certain disease when it is in fact, present. However, the test also yields a false positive result for 0.5% of the healthy person tested (i.e. if a healthy person is tested, then, with probability 0.005, the test will imply he has the disease). If 0.1 percent of the population actually has the disease, what is the probability that a person has the disease given that his test result is positive? ▶ Watch Free Video Solution on Doubtnut
41	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 6** There are three coins. One is a two headed coin (having head on both faces), another is a biased coin that comes up heads 75% of the time and third is an unbiased coin. One of the three coins is chosen at random and tossed, it shows heads, what is the probability that it was the two headed coin? ▶ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 7 An insurance company insured 2000 scooter drivers, 4000 car drivers and 6000 truck

42	drivers. The probability of an accidents are 0.01, 0.03 and 0.15 respectively. One of the insured persons meets with an accident. What is the probability that he is a scooter driver? ▶ Watch Free Video Solution on Doubtnut
43	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 8** A factory has two machines A and B. Past record shows that machine A produced 60% of the items of output and machine B produced 40% of the items. Further, 2% of the items produced by machine A and 1% produced by machine B were defective. All the items are put into one stockpile and then one item is chosen at random from this and is found to be defective. What is the probability that it was produced by machine B? ▶ Watch Free Video Solution on Doubtnut
44	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 9** Two groups are competing for the position on the Board of directors of a corporation. The probabilities that the first and the second groups will win are 0.6 and 0.4 respectively. Further, if the first group wins, the probability of introducing a new product is 0.7 and the corresponding probability is 0.3 if the second group wins. Find the probability that the new product introduced was by the second group. ▶ Watch Free Video Solution on Doubtnut
45	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 10** Suppose a girl throws a die. If she gets a 5 or 6, she tosses a coin three times and notes the number of heads. If she gets 1, 2, 3 or 4, she tosses a coin once and notes whether a head or tail is obtained. If she obtained exactly one head, what is the probability that she threw 1, 2, 3 or 4 with the die? ▶ Watch Free Video Solution on Doubtnut
46	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 11** A manufacturer has three machine operators A, B and C. The first operator A produces 1% defective items, where as the other two operators B and C produce 5% and 7% defective items respectively. A is on the job for 50% of the tune, B is on the job for 30% of the time and C is on the job for 20% of the time. A defective item is produced, what is the probability that it was produced by A? ▶ Watch Free Video Solution on Doubtnut
47	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 12** A card from a pack of 52 cards is lost. From the remaining cards of the pack, two cards are drawn and are found to be both diamonds. Find the probability of the lost card being a diamond. ▶ Watch Free Video Solution on Doubtnut

NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 13

Probability that A speaks truth is $\dfrac{4}{5}$. A coin is tossed. A reports that a head appears. The probability that actually there was head is (A) $\dfrac{4}{5}$ (B) $\dfrac{1}{2}$ (C) $\dfrac{1}{5}$ (D) $\dfrac{2}{5}$

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.3 - Q 14

If A and B are two events such that $A \subset B$ and $P(B) \neq 0,$ them which of the following is correct? (A) $P(A \mid B) = \dfrac{P(B)}{P(A)}$ (B) $P(A \mid B) < P(A)$ (C) $P(A \mid B) \geq P(B)$ (D) none of these

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 1

State which of the following are not the probability distributions of a random variable. Give reasons for your answer.

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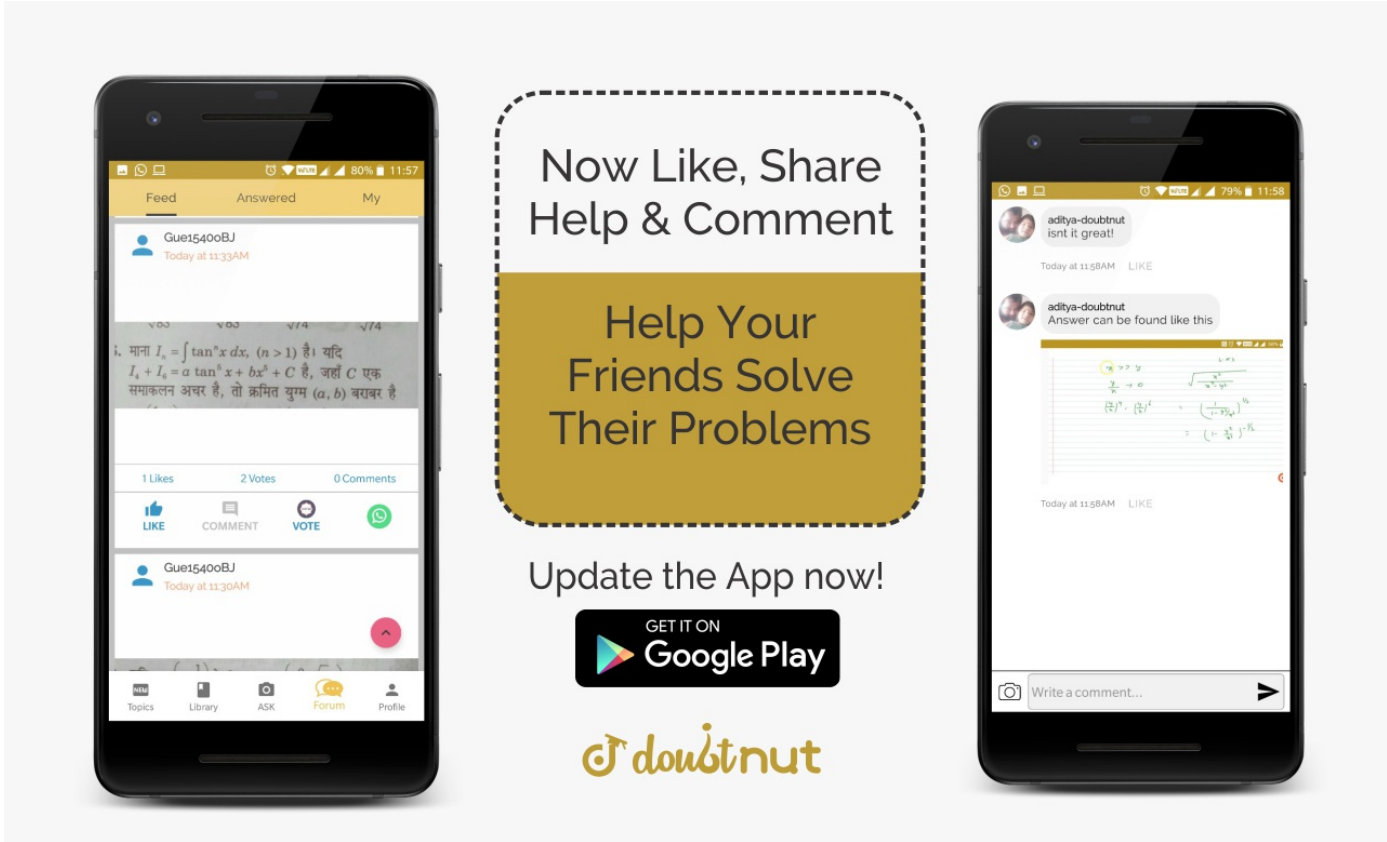
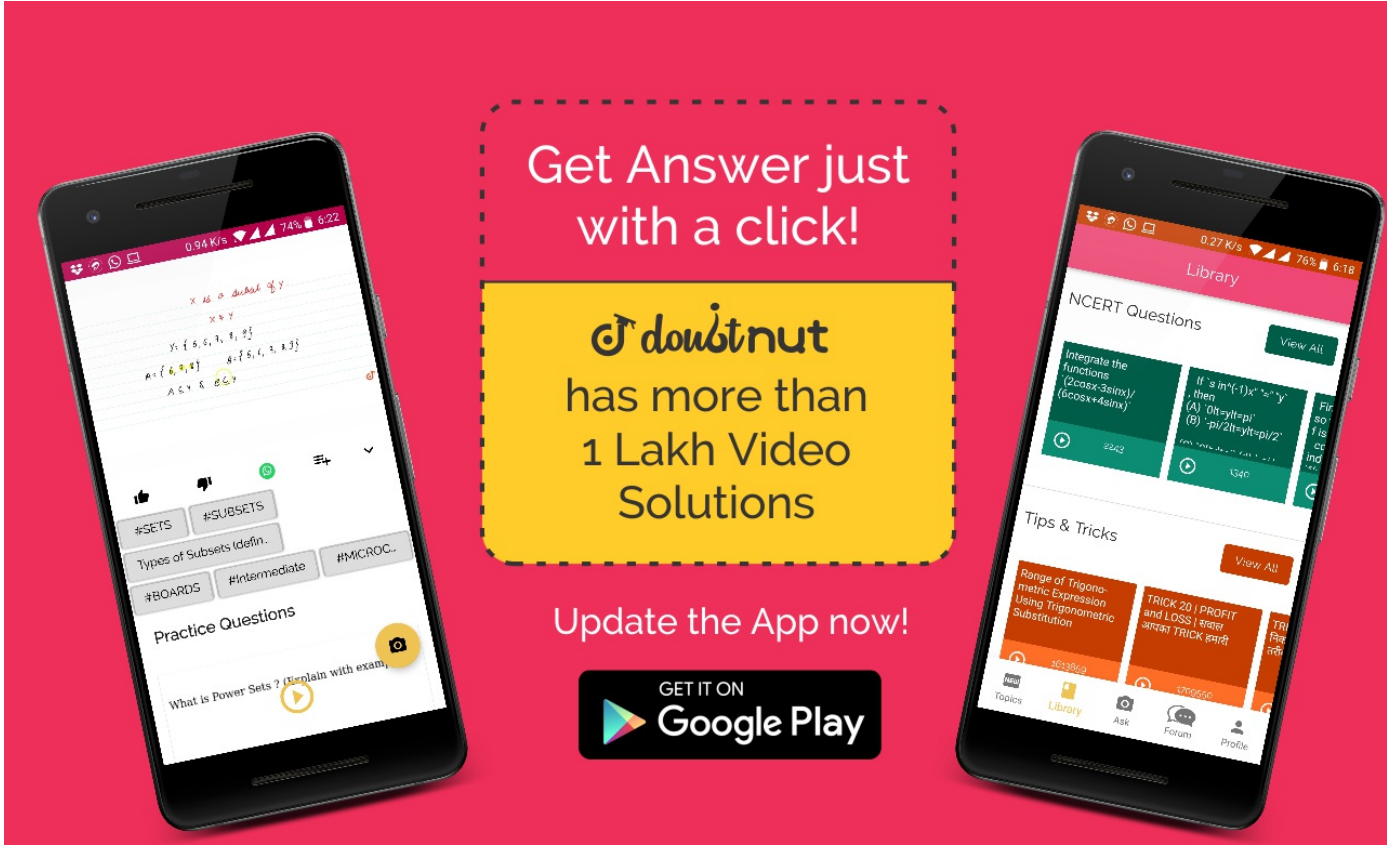**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 2**

An urn contains 5 red and 2 black balls. Two balls are randomly drawn. Let X represent the number of black balls. What are the possible values of X? Is X a random variable?
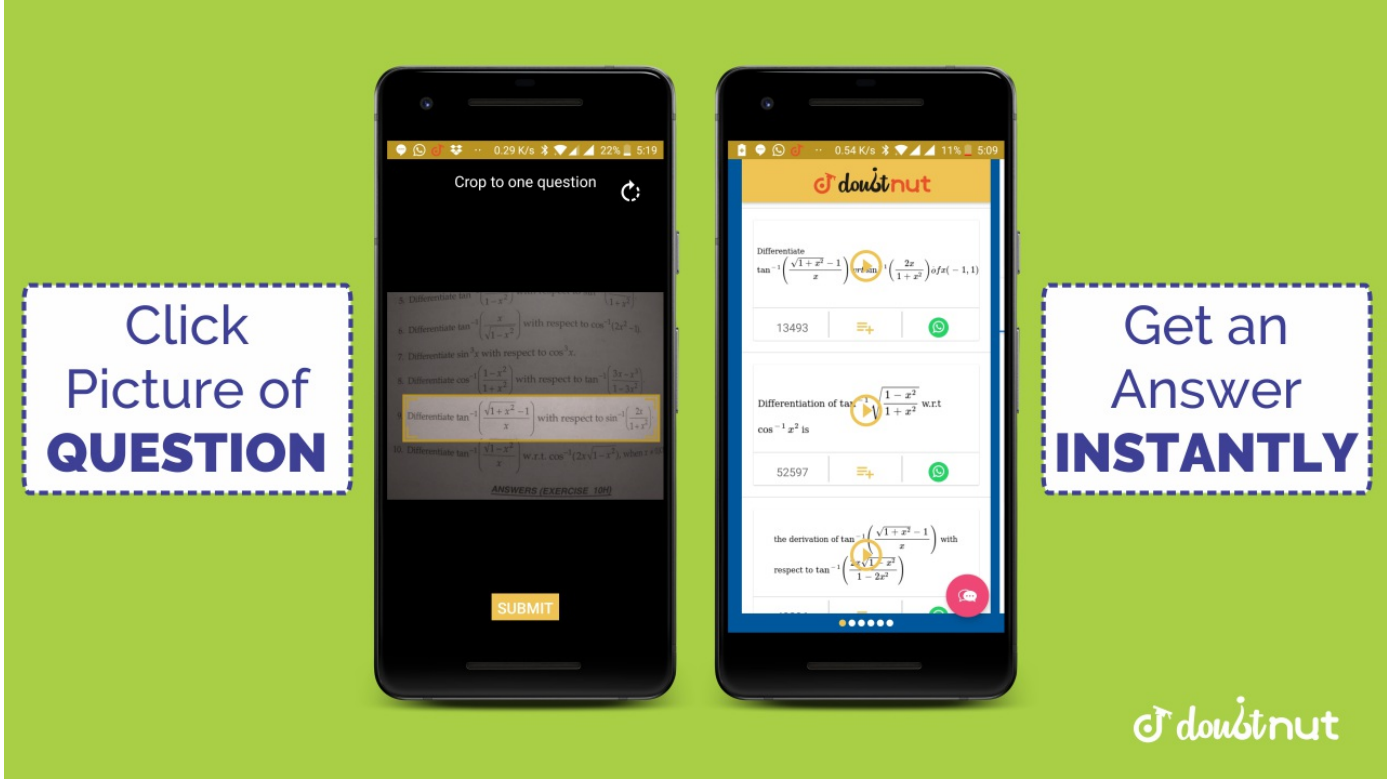
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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 3

Let X represent the difference between the number of heads and the number of tails obtained when a coin is tossed 6 times. What are possible values of X?

53	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 4** Find the probability distribution of (i) number of heads in two tosses of a coin. (ii) number of tails in the simultaneous tosses of three corns. (iii) number of heads in four tosses of a com. ▶ Watch Free Video Solution on Doubtnut

54	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 5** Find the probability distribution of the number of successes in two tosses of a die, where a success is defined as (i) number greater than 4 (ii) six appears on at least one die ▶ Watch Free Video Solution on Doubtnut
55	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 6** From a lot of 30 bulbs which include 6 defectives, a sample of 4 bulbs is drawn at random with replacement. Find the probability distribution of the number of defective bulbs. ▶ Watch Free Video Solution on Doubtnut
56	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 7** A coin is biased so that the head is 3 times as likely to occur as tail. If the coin is tossed twice, find the probability distribution of number of tails. ▶ Watch Free Video Solution on Doubtnut

57	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 8** A random variable X has the following probability distribution: Determine (i) k (ii) $P(X < 3)$ (iii) $P(X > 6)$ (iv) `P(0 ▶ Watch Free Video Solution on Doubtnut

58	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 9** The random variable X has a probability distribution P(X) of the following form, where k is some number : P(X) = $\{(k, \quad \text{if} \quad x = 0),$ $(2k, \quad \text{if} \quad x = 1),$ $(3k, \quad \text{if} \quad x = 2),$ $(0 otherwise)$ (a) Determine k. (b) Find P $(X < 2)$, P $(X \leq 2)$, P$(X \geq 2)$ ▶ Watch Free Video Solution on Doubtnut

59	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 10** Find the mean number of heads in three tosses of a fair coin. ▶ Watch Free Video Solution on Doubtnut

60	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 11** Two dice are thrown simultaneously. If X denotes the number of sixes, find the expectation of X. ▶ Watch Free Video Solution on Doubtnut

61	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 12** Two numbers are selected at random (without replacement) from the first six positive integers. Let X denote the larger of the two numbers obtained. Find E(X).

62	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 13** Let X denote the sum of the numbers obtained when two fair dice are rolled. Find the variance and standard deviation of X.
63	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 14** A class has 15 students whose ages are 14, 17, 15, 14, 21, 17, 19, 20, 16, 18, 20, 17, 16, 19 and 20 years. One student is selected in such a manner that each has the same chance of being chosen and the age X of the selected student is recorded. What is the probability distribution of the random variable X? Find mean, variance and standard deviation of X.
64	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 15** In a meeting, 70% of the members favour and 30% oppose a certain proposal. A member is selected at random and we take X = 0 if he opposed, and X = 1 if he is in favour. Find E(X) and Var (X).
65	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 16** The mean of the numbers obtained on throwing a die having written 1 on three faces, 2 on two faces and 5 on one face is (A) 1 (B) 2 (C) 5 (D) $\dfrac{8}{3}$

NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.4 - Q 17

Suppose that two cards are drawn at random from a deck of cards. Let X be the

66	number of aces obtained. Then the value of E(X) is (A) $\dfrac{37}{221}$ (B) $\dfrac{5}{13}$ (C) $\dfrac{1}{13}$ (D) $\dfrac{2}{13}$ ► Watch Free Video Solution on Doubtnut
67	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 1** A die is thrown 6 times. If "getting an odd number" is a success, what is the probability of (i) 5 successes? (ii) at least 5 successes? (iii) at most 5 successes? ► Watch Free Video Solution on Doubtnut
68	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 2** A pair of dice is thrown 4 times. If getting a doublet is considered a success, find the probability of two successes. ► Watch Free Video Solution on Doubtnut
69	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 3** There are 5% defective items in a large bulk of items. What is the probability that a sample of 10 items will include not more than one defective item? ► Watch Free Video Solution on Doubtnut
70	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 4** Five cards are drawn successively with replacement from a well-shuffled deck of 52 cards. What is the probability that (i) all the five cards are spades? (ii) only 3 cards are spades? (iii) none is a spade? ► Watch Free Video Solution on Doubtnut
71	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 5** The probability that a bulb produced by a factory will fuse after 150 days of use is 0.05. Find the probability that out of 5 such bulbs (i) none (ii) not more than one (iii) more than one (iv) at least one will fuse after 150 days of use. ► Watch Free Video Solution on Doubtnut

NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 6

A bag consists of 10 balls each marked with one of the digits 0 to 9. If four balls are drawn successively with replacement from the bag, what is the probability that none is marked with the digit 0?

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 7

In an examination, 20 questions of true-false type are asked. Suppose a student tosses a fair coin to determine his answer to each question. If the com falls heads, he answers "true1; if it falls tails, he answers "false1. Find the probability that he answers at least 12 questions correctly.

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 8

Suppose X has a binomial distribution $B\left(6, \dfrac{1}{2}\right)$. Show that $X = 3$ is the most likely outcome. (Hint: $P(x = 3)$ is the maximum among all $P(x_i)$, $x_i = 0, 1, 2, 3, 4, 5, 6$)

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 9

Oil a multiple choice examination with three possible answers for each of the five questions, what is the probability that a candidate would get four or more correct answers just by guessing?

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 10
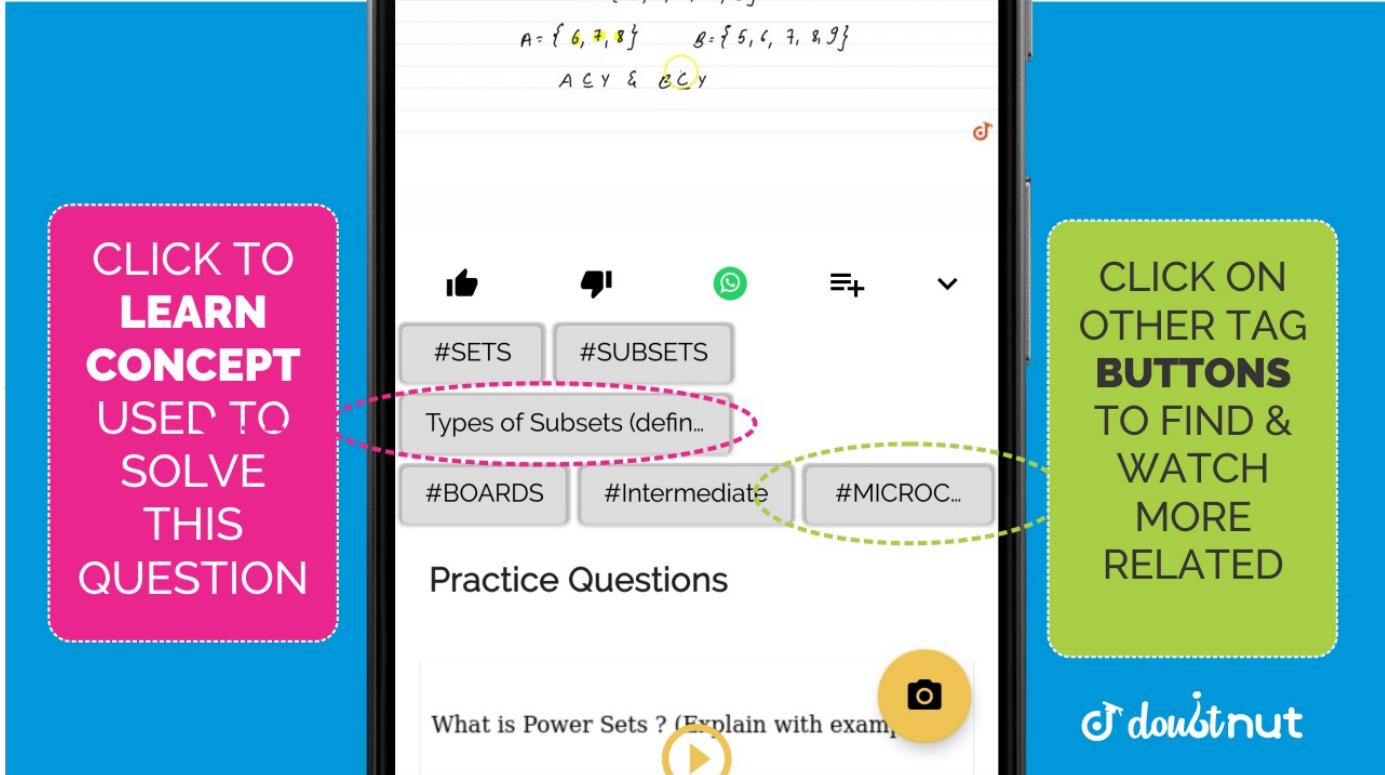
76	A person buys a lottery ticket in 50 lotteries, in each of which his chance of winning a prize is $\dfrac{1}{100}$. What is the probability that he will win a prize (a) at least once (b) exactly once (c) at least twice? ▶ **Watch Free Video Solution on Doubtnut**
77	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 11** Find the probability of getting 5 exactly twice in 7 throws of a die. ▶ **Watch Free Video Solution on Doubtnut**
78	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 12** Find the probability of throwing at most 2 sixes in 6 throws of a single die. ▶ **Watch Free Video Solution on Doubtnut**
79	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 13** It is known that 10% of certain articles manufactured are defective. What is the probability that in a random sample of 12 such articles, 9 are defective? ▶ **Watch Free Video Solution on Doubtnut**
80	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 14** In a box containing 100 bulbs, 10 are defective. The probability that out of a sample of 5 bulbs, none is defective is (A) 10-1 (B) $\left(\dfrac{1}{2}\right)^{5}$ (C) $\left(\dfrac{9}{10}\right)^{5}$ (D) $\dfrac{9}{10}$ ▶ **Watch Free Video Solution on Doubtnut**
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - EXERCISE 13.5 - Q 15

| 81	The probability that a student is not a swimmer is $\dfrac{1}{5}$. Then the probability that out of five students, four are swimmers is (A) $\hat{} 5C_4 \left(\dfrac{4}{5}\right)^4 \dfrac{1}{5}$ (B) $\left(\dfrac{4}{5}\right)^4 \dfrac{1}{5}$ (C) $\hat{} 5C_1 \dfrac{1}{5}\left(\dfrac{4}{5}\right)^4$ (D) None of these ▶ Watch Free Video Solution on Doubtnut
82	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 1** A and B are two events such that $P(A) \neq 0.$ Find $P(B \mid A)$, if (i) A is a subset of B (ii) $A \cap B = \varphi$ ▶ Watch Free Video Solution on Doubtnut
83	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 2** A couple has two children, (i) Find the probability that both children are males, if it is known that at least one of the children is male. (ii) Find the probability that both children are females, if it is known that the elder child is a female. ▶ Watch Free Video Solution on Doubtnut
84	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 3** Suppose that 5% of men and 0.25% of women have grey hair. A grey haired person is selected at random. What is the probability of this person being male? Assume that there are equal number of males and females. ▶ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 4

| 85 | Suppose that 90% of people are right-handed. What is the probability that at most 6 of a random sample of 10 people are right-handed?

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| 86 | **NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 5**

An urn contains 25 balls of which 10 balls bear a mark "X" and the remaining 15 bear a mark Y. A ball is drawn at random from the urn, its mark is noted down and it is replaced. If 6 balls are drawn in this way, find the probability that (i) all will bear "X" mark. (ii) not more than 2 will bear "Y" mark, (iii) at least one ball will bear "Y" mark. (iv) the number of balls with "X" mark and Y mark will be equal.

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| 87 | **NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 6**

In a hurdle race, a player has to cross 10 hurdles. The probability that he will clear each hurdle is $\dfrac{5}{6}$. What is the probability that he will knock down fewer than 2 hurdles?

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| 88 | **NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 7**

A die is thrown again and again until three sixes are obtained. Find the probability of obtaining the third six in the sixth throw of the die.

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| 89 | **NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 8**

If a leap year is selected at random, what is the chance that it will contain 53 Tuesdays?

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90	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 9** An experiment succeeds twice as often as it fails. Find the probability that in the next six trials, there will be atleast 4 successes. ▶ Watch Free Video Solution on Doubtnut
91	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 10** How many times must a man toss a fair com so that the probability of having at least one head is more than 90%? ▶ Watch Free Video Solution on Doubtnut
92	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 11** In a game, a man wins a rupee for a six and loses a rupee for any other number when a fair die is thrown. The man decided to throw a die thrice but to quit as and when he gets a six. Find the expected value of the amount he wins / loses. ▶ Watch Free Video Solution on Doubtnut
93	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 12** Suppose we have four boxes A,B,C and D containing coloured marbles as given below : One of the boxes has been selected at random and a single marble is drawn from it. If the marble is red, what is the probability that it was drawn from box A? box B?, box C? ▶ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 13 Assume that the chances of a patient having a heart attack is 40%. It is also assumed that a meditation and yoga course reduce the risk of heart attack by 30% and

94	prescription of certain drug reduces its chances by 25%. At a time a patient can choose any one of the two options with equal probabilities. It is given that after going through one of the two options the patient selected at random suffers a heart attack. Find the probability that the patient followed a course of meditation and yoga? ▶ Watch Free Video Solution on Doubtnut
95	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 14** If each element of a second order determinant is either zero or one, what is the probability that the value of the determinant is positive? (Assume that the individual entries of the determinant are chosen independently, each value being assumed ▶ Watch Free Video Solution on Doubtnut
96	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 15** An electronic assembly consists of two subsystems, say, A and B. From previous testing procedures, the following probabilities are assumed to be known: P(A fails) = 0.2 P(B fails alone) = 0.15 P(A and B fail) = 0.15 Evaluate the following probabilities (i) P(A fails B has failed)　　(ii) P(A fails alone) ▶ Watch Free Video Solution on Doubtnut
97	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 16** Bag I contains 3 red and 4 black balls and Bag II contains 4 red and 5 black balls. One ball is transferred from Bag I to Bag II and then a ball is drawn from Bag II. The ball so drawn is found to be red in colour. Find the probability that the transferred ball is black. ▶ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 17

98	If A and B are two events such that $P(A) \neq 0$ and $P(B \mid A) = 1$; then (A) $A \subset B$ (B) $B \subset A$ (C) $B = \varphi$ (D) $A = \varphi$ ▶ **Watch Free Video Solution on Doubtnut**
99	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 18** If $P(A \mid B) > P(A)$, then which of the following is correct: (A) $P(B \mid A) < P(B)$ (B) $P(A \cap B) < P(A) \cdot P(B)$ (c) $P(B \mid A) > P(B)$ (D) $P(B \mid A) = P(B)$ ▶ **Watch Free Video Solution on Doubtnut**
100	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - MISCELLANEOUS EXERCISE - Q 19** If A and B are any two events such that $P(A) + P(B) - P(A \ and \ B) = P(A)$? then (A) $P(B \mid A) = 1$ (B) $P(A \mid B) = 1$ (C) $P(B \mid A) = 0$ (D) $P(A \mid B) = 0$ ▶ **Watch Free Video Solution on Doubtnut**
101	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 1** If $P(A) = \dfrac{7}{13}$, $P(B) = \dfrac{9}{13}$ and $P(A \cap B) = \dfrac{4}{13}$, evaluate $P(A \mid B)$. ▶ **Watch Free Video Solution on Doubtnut**

102	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 2** A family has two children. What is the probability that both the children are boys given that at-least one of them is a boy? ⊙ Watch Free Video Solution on Doubtnut
103	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 3** Ten cards numbered 1 to 10 are placed in a box, mixed up thoroughly and then one card is drawn randomly. If it is known that the number on the drawn card is more than 3, what is the probability that it is an even number? ⊙ Watch Free Video Solution on Doubtnut
104	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 4** In a school there are 1000 students, out of which 430 are girls. It is known that out of 430, 10% of the girls study in class XII. What is the probability that a student chosen randomly studies in Class XII given that the chosen student is a girl? ⊙ Watch Free Video Solution on Doubtnut
105	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 5** A die is thrown three times. Events A and B are defined as below: A : 4 on the third throw B : 6 on the first and 5 on the second throw Find the probability of A given that B has already occurred. ⊙ Watch Free Video Solution on Doubtnut
106	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 6** A die is thrown twice and the stun of the numbers appearing is observed to be 6. What is the conditional probability that the number 4 has appeared at least once? ⊙ Watch Free Video Solution on Doubtnut
107	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 7** Consider the experiment of tossing a coin. If the coin shows head, toss it again but if it shows tail then throw a die. Find the conditional probability of the event that the die shows a number greater than 4 given that there is at least one tail. ⊙ Watch Free Video Solution on Doubtnut
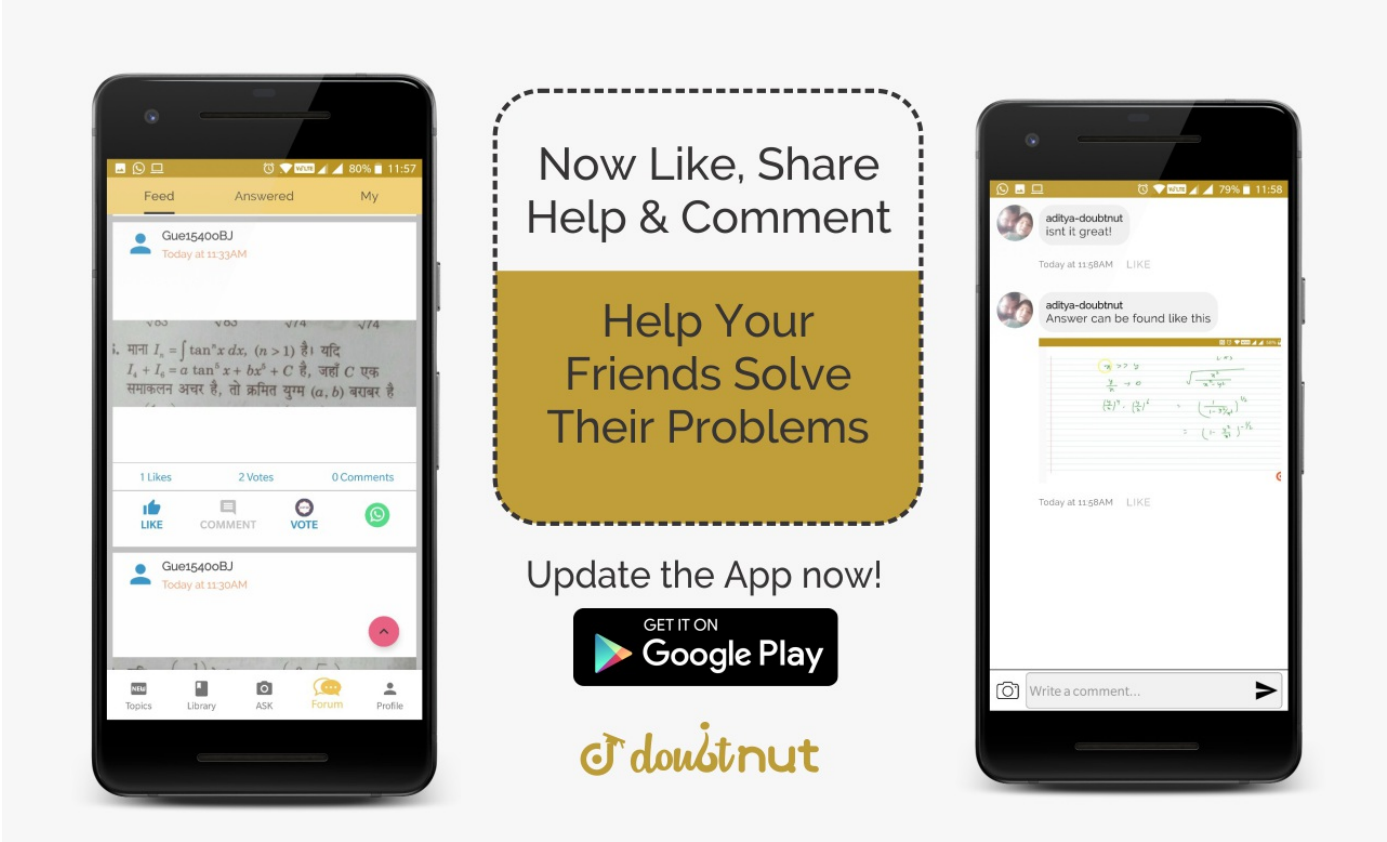
108	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 8** An urn contains 10 black and 5 white balls. Two balls are drawn from the nm one after the other without replacement. What is the probability that both drawn balls are black? ▶ Watch Free Video Solution on Doubtnut
109	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 9** Three cards are drawn successively, without replacement from a pack of 52 well shuffled cards. What is the probability that first two cards are kings and the third card drawn is an ace? ▶ Watch Free Video Solution on Doubtnut
110	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 10** A die is thrown. If E is the event 'the number appearing is a multiple of 3' and F be the event 'the number appearing is even' then find whether E and F are independent? ▶ Watch Free Video Solution on Doubtnut
111	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 11** An unbiased die is thrown twice. Let the event A be "odd number on the first throw" and B the event "odd number on the second throw". Check the independence of the events A and B. ▶ Watch Free Video Solution on Doubtnut
112	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 12** Three coins are tossed simultaneously. Consider the event E "three heads or three tails", F "at least two heads" and G "at most two heads". Of the pairs (EE), (E, G) and (F,G), which are independent? Which are dependent? ▶ Watch Free Video Solution on Doubtnut
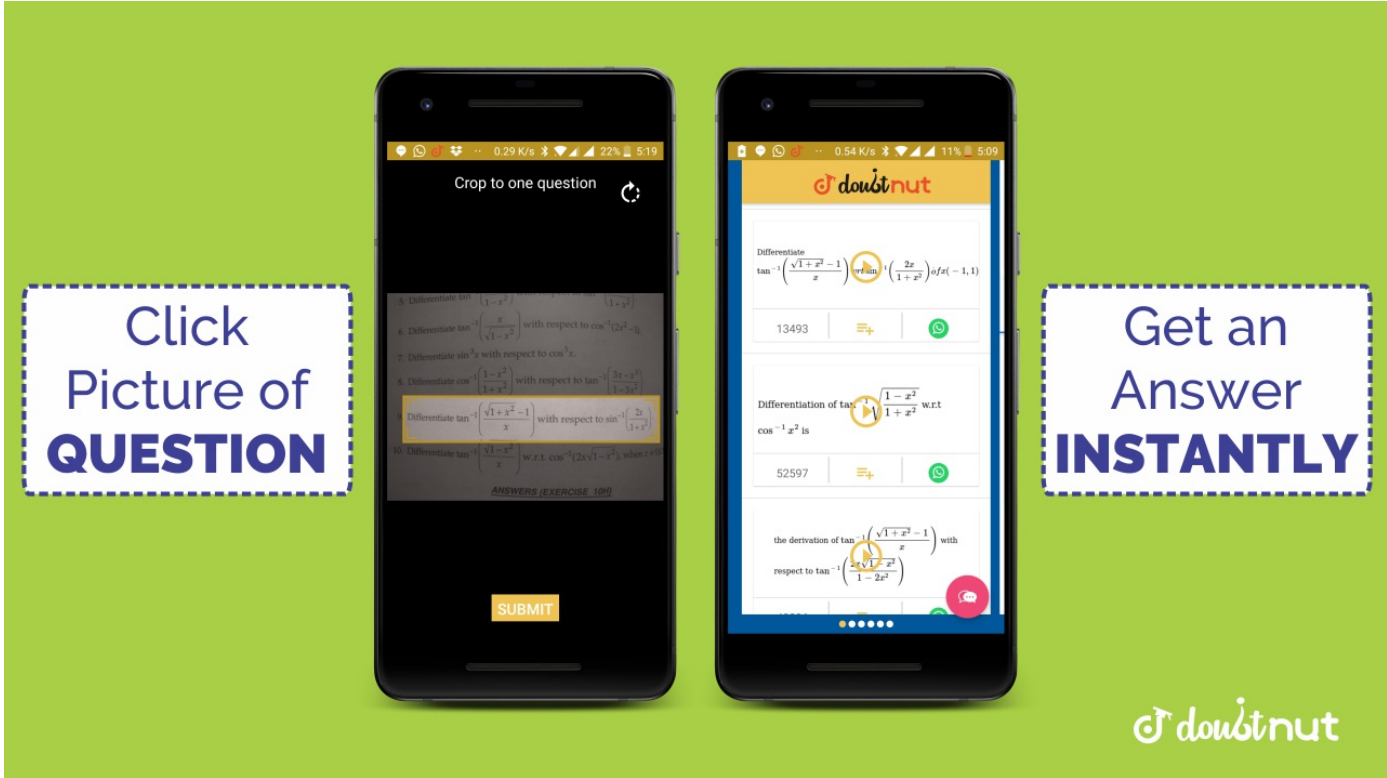
113	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 13** Prove that if E and F are independent events, then so are the events E and F. ⊙ Watch Free Video Solution on Doubtnut
114	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 14** If A and B are two independent events, then the probability of occurrence of at least one of A and B is given by $1 - P'(A)P'(B)$ ⊙ Watch Free Video Solution on Doubtnut
115	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 15** A person has undertaken a construction job. The probabilities are 0.65 that there will be strike. 0.80 that the construction job will be completed on time if there is no strike, and 0.32 that the construction job will be completed on time if there is a strike. Determine the probability that the construction job will be completed on time. ⊙ Watch Free Video Solution on Doubtnut
116	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 16** Bag I contains 3 red and 4 black balls while another Bag II contains 5 red and 6 black balls. One ball is drawn at random from one of the bags and it is found to be red. Find the probability that it was drawn from Bag II. ⊙ Watch Free Video Solution on Doubtnut
	NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 17

117	Given three identical boxes I, II and III, each containing two coins. In box L both coins are gold coins, in box II, both are silver coins and in the box III, There is one gold and one silver coin. A person chooses a box at random and takes out a coin. If the coin is of gold, what is the probability that the other coin in the box is also of gold? ▶ Watch Free Video Solution on Doubtnut
118	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 18** Suppose that the reliability of a HIV test is specified as follows: Of people having HIV. 90% of the test detects the disease but 10% go undetected. Of people free of HIV, 99% of the test are judged HTV-ive but 1% are diagnosed as showing H3V+ive. From a large population of which only 0.1% have HIV one person is selected at random, given the HIV test, and the pathologist reports him/her as HIV+ive. What is the probability that the person actually has HIV? ▶ Watch Free Video Solution on Doubtnut
119	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 19** In a factory which manufactures bolts, machines A. B and C manufacture respectively 25%, 35% and 40% of the bolts. Of their outputs, 5, 4 and 2 percent are respectively defective bolts. A bolt is drawn at random from the product and is found to be defective. What is the probability that it is manufactured by the machine B? ▶ Watch Free Video Solution on Doubtnut

| 120 | **NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 20**

A doctor is to visit a patient. From the past experience, it is known that the probabilities that he will come by train, bus, scooter or by other means of transport are respectively $\frac{3}{10}, \frac{1}{5}, \frac{1}{10} and \frac{2}{5}$. The probabilities that he will be l |

121	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 21** A man is known to speak truth 3 out of 4 times. He throws a die and reports that it is a six. Find the probability that it is actually a six.
122	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 22** A person plays a game of tossing a coin thrice. For each head, he is given Rs 2 by the organiser of the game and for each tail, he has to give Rs 1.50 to the organiser. Let X denotes the amount gained or lost by the person. Show that X is a random variable and exhibit it as a function on the sample space of the experiment.
123	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 23** A bag contains 2 white and 1 red balls. One ball is drawn at random and then put back in the box after noting its colour. The process is repeated again. If X denotes the number of red balls recorded in the two draws, describe X.
124	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 24** Two cards are drawn successively with replacement from a well-shuffled deck of 52 cards. Find the probability distribution of the number of aces.
125	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 25** Find the probability distribution of number of doublets m three throws of a pair of dice.
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126	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 26** Let X denote the number of hours you study during a randomly selected school day The probability that X can take the values x. has the following form, where k is some unknown constant. `P(X=x)={0. 1 if x=0,k x if x=1 , 2k(5-x) if x=3 or 4, 0 otherwise` ▶ Watch Free Video Solution on Doubtnut
127	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 27** Let a pair of dice be thrown and the random variable X be the sum of the numbers that appear on the two dice. Find the mean or expectation of X. ▶ Watch Free Video Solution on Doubtnut
128	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 29** Two cards are drawn simultaneously (or successively without replacement) from a well shuffled pack of 52 cards. Find the mean, variance and standard deviation of the number of kings. ▶ Watch Free Video Solution on Doubtnut
129	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 30** Six balls are drawn successively from an um containing 7 red and 9 black balls. Tell whether or not the trials of drawing balls are Bernoulli trials when after each draw the ball drawn is (i) replaced (ii) not replaced in the urn. ▶ Watch Free Video Solution on Doubtnut
130	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 31** If a fair coin is tossed 10 times, find the probability of (i) exactly six heads (ii) at least six heads (iii) at most six heads ▶ Watch Free Video Solution on Doubtnut

NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 34

Find the mean of the Binomial distribution $B\left(4, \dfrac{1}{3}\right)$.

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 35

The probability of a shooter hitting a target is $\dfrac{3}{4}$. How many minimum number of times must he/she fire so that the probability of hitting the target at least once is more than 0.99?

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NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 36

A and B throw a die alternatively till one of them gets a 6 and wins the game. Find their respective probabilities of winning, if A starts first.

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136	**NCERT - CLASS 12 - CHAPTER 13 PROBABILITY - SOLVED EXAMPLES - Q 37** If a machine is correctly set up. it produces 90% acceptable items. If it is incorrectly set up, it produces only 40% acceptable items. Past experience shows that 80% of the set ups are correctly done. If after a certain set up, the machine produces 2 acceptable items, find the probability that the machine is correctly setup. ▶ Watch Free Video Solution on Doubtnut