

Comprehensive Test Probability-X

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Q1. A lot consists of 144 ball pens of which 20 are defective and the others are good. Nuri will buy a pen if it is good, but will not buy if it defective. The shopkeeper draws one pen at random and gives it to her. What is the probability that

- (i) She will buy it? (ii) She will not buy it?

Q2. An unbiased die is thrown. What is the probability of getting:

- (i) an even number or a multiple of 3
(ii) an even number and multiple of 3
(iii) a number 3 or 4.

Q3. Two unbiased coins are tossed simultaneously. Find the probability of getting

- (i) at least one head. (ii) at most one head. (iii) No head.

Q4. Three unbiased coins are tossed together. Find the probability of getting:

- (i) all heads (ii) at least two heads

Q5. Two dice are thrown simultaneously. Find the probability of getting :

- (i) the sum as a prime number
(ii) a total of at least 10
(iii) a doublet of even number
(iv) a multiple of 2 on one dice and a multiple of 3 on the other.

Q6. Find the probability that a leap year selected at random will contain 53 Sundays.

Q7. What is the probability that a number selected from the numbers 1,2,3...,25 is a prime number, when each of the given numbers is equally likely to be selected?

Q8. One card drawn from a pack of 52 cards, each of the 52 cards being equally likely to be drawn. Find the probability that the card drawn is:

- (i) an ace (ii) red (iii) either red or king (iv) red and a king
(v) a face card (vi) a red face card (vii) '2' of spades (viii) '10' of a black suit

Q9. The king, queen and jack of clubs are removed from a deck of 52 playing cards and the deck well shuffled. One card is selected from the remaining cards. Find the probability of getting:

- (i) a heart (ii) a king (iii) a club (iv) the '10' of hearts.

Q10. A bag contains 5 red balls and some blue balls. If the probability of drawing blue ball is double that of a red ball, find the number of blue balls in the bag.

Q11. A bag contains 12 balls out of which x are white.

- (i) If one ball is drawn at random, what is the probability that it will be a white ball?
(ii) If 6 more white balls are put in the bag, the probability of drawing a white ball will be double than that in (i). Find x .

Q12. Cards marked with the numbers 2 to 101 are placed in a box and mixed thoroughly. One card is drawn from this box. Find the probability that the number on the card is:

- (i) an even number (ii) a number less than 14
(iii) a number which is a perfect square (iv) a prime number less than 20.

Q13. A letter is chosen at random from the letters of the word 'ASSASSINATION'. Find the probability that the letter chosen is (i) vowel (ii) consonant.

Q14. 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 $\frac{2}{3}$, and the probability of selecting a green marble at random is $\frac{1}{3}$. How many white marbles does the jar contain?

Q15. A number x is selected from the numbers 1,2,3 and then a second number randomly selected from the numbers 1,4,9. What is the probability that the product xy of the two numbers will be less than 9?

Q16. Tickets numbered from 1 to 20 are mixed up together and then a ticket is drawn at random. What is the probability that the ticket has a number which is a multiple of 3 or 7.

Q17. It is known that a box of 600 electric bulbs contains 12 defective bulbs. One bulb is taken out at random from this box. What is the probability that it is a non-defective bulb?

Q18. 17 cards numbered 1,2,3,...,17 are put in a box and mixed thoroughly. One person draws a card from the box. Find the probability that the number on the card is:

(i) odd (ii) a prime (iii) divisible by 3 (iv) divisible by 3 and 2 both

Q19. 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:

(i) black (ii) red (iii) not green.

Q20. A game consists of tossing a one rupee coin 3 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.

Q21. If a number x is chosen at random from the numbers $-2,-1,0,1,2$. What is the probability that $2x < 2$?

Q22. A jar contains 24 marbles some are green are others are blue. If a marble is drawn at random from the jar, the probability that it is green is $\frac{2}{3}$. Find the number of blue marbles in the jar.

Q23. A card is drawn at random from a pack of 52 cards. Find the probability that the card drawn is

- (i) black king
- (ii) either a black card or a king
- (iii) black and a king
- (iv) a jack, queen or a king
- (v) neither a heart nor a king
- (vi) spade or an ace
- (vii) neither an ace nor a king
- (viii) neither a red card nor a queen
- (ix) other than an ace
- (x) a ten
- (xi) a spade
- (xii) a black card
- (xiii) the seven of clubs
- (xiv) jack
- (xv) the ace of spades
- (xvi) a queen
- (xvii) a heart
- (xviii) a red card

Q24. In a lottery of 50 tickets numbered 1 to 50, one ticket is drawn. Find the probability that the drawn ticket bears a prime number.

Q25. In a lottery there are 10 prizes and 25 blanks. What is the probability of getting a prize?