MATHS

BOOKS - V PUBLICATION

MATHEMATICS OF CHANCE

Question Bank

1. A box contains 6 black and 4 white balls If a ball is taken from it, what is the probability of

it being black? And the probability of it being white?

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2. There are 3 red balls and 7 green balls in a bag, 8 red and 7 green balls in another.

i) Whạt is the probability of getting a red ball from the first bag?

ii) From the second bag?

iii) If all the balls are put in a single bag, what is the probability of getting a red ball from it?

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3. One is asked to say a two-digit number What is the probability of it being a perfect square?

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4. Numbers from 1 to 50 are written on slips of paper and put in a box A slip is to be drawn from it, but before doing so, one must make a guess about the number: either prime number

or a multiple of five Which is the better guess? Why?

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5. A bág contains 3 red beads and 7 green beads Another contains one red and one green more, The probability of getting a red from which bag is more?

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6. A bag contains 6 red beads and 4 green beads Another bag contains 2 red and 2 green beads more.

The probability of getting red bead from which bag is more?

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7. Numbers from 1 to 10 are written in small papers and placed in á box A paper is taken at random, without looking

a) What is the probability of getting a prime number?

b) Being an odd number

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8. How many distinct 3 digit numbers can be written using the digits 5,6 and 7 without repeating the digits?

a) What is the probability that the numbers are odd numbers?

b) What is the probability that the numbers are even numbers?

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9. The value of $2^1, 2^2, 2^3 \ldots 2^{50}$ are written in small papers and put it in the box. A paper is taken at random.What is the probability of getting a number having 4 in ones place. What is the probability of having 8 in the one's place.

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10. A bag contains some black beads and some white beads. White beads are 8 in numbers. If a bead is taken from it, the probability of it being white is $\frac{1}{3}$

a) How many beads are there in the bag?

b) What is the probability of it being black?

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11. In each picture below, the explanation of the green part is given Calculate in each, the probability of a put without looking to be

within the green part:

A square got by joining the mid points of a bigger square.

'(##VPU_TTT_MAT_X_P01_C03_E03_001_Q01##)'

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12. A square with all vertices on a circle.

'(##VPU_TTT_MAT_X_P01_C03_E03_002_Q01##)'

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13. Circle exactly fitting inside a square.

'(##VPU_TTT_MAT_X_P01_C03_E03_003_Q01##)'

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14. A tríangle got by joining alternate vertices of a regular hexagon:

'(##VPU_TTT_MAT_X_P01_C03_E03_004_Q01##)'

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15. A regular hexagon formed by two overlapping equilateral triangles.

'(##VPU_TTT_MAT_X_P01_C03_E03_005_Q01##)'

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16. An equilateral triangle is drawn with its vertices on the circle If we put a in it without looking into the picture

'(##VPU_TTT_MAT_X_P01_C03_E04_001_Q01##)'

What is the probability of being the inside the

triangle?

Also find the probability of being the outside the tringle

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17. In the figure all the four shaded semicircles have same area If we put a dot in the figure without looking into it,

'(##VPU_TTT_MAT_X_P01_C03_E04_002_Q01##)'

a) What is the probability of being the in the shaded semicircle?

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18. 1/4' part of a circle is shaded If we put a dot in it without looking into the picture, what is the probability of dot being in the shaded part?

'(##VPU_TTT_MAT_X_P01_C03_E04_003_Q01##)'

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19. In the figure ABCD is a square Without looking, a point marked in the figure

'(##VPU_TTT_MAT_X_P01_C03_E04_004_Q01##)'

a) Find the probability that the obmarked point lies inside the square?

b) Find the probability that the point lies in the triangle 'ABE'

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20. If we put a dot, without looking find the probability that the lies inside the shaded part.

'(##VPU_TTT_MAT_X_P01_C03_E04_005_Q01##)'


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21. Rajani has three necklaces and three pairs of earrings, of green, blue and red stones In what all different ways can she wear them? What is the probability of her wearing the necklace and earrings of the same colour? Of different colours?


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22. A box contains four slips nümbered '1,2,3,4' and another box contains two slips numbered 1,2 If one slip is taken from each, what is the probability of the sum of numbers being odd? What is the probability of the sum being even?

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23. A box contains four slips numbered $1, 2, 3, 4$ and another contains three slips numbered $1, 2, 3$ If one slip is taken from each,

what is the probability of the product being odd? The probability of the product being even?

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24. From all two-digit numbers with either digit 1, 2, or 3 one number is chosen

i) What is the probability of both digits being the same?

ii) What is the probability of the sum of the digits being 4 ?

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25. A game for two players.First,each has to decide whether he wants odd number or even number. Then both raises some fingers of one hand. If the sum is odd, the one who chose odd at the beginning wins, if it is even, the one who chose even wins. In this game, which is the better choice at the beginning, odd or even?

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26. Two boxes contain tokens on which numbers $1, 2, 3, 4$ are written. One token is taken from each box.

a) What is the probability of getting sum of the face numbers a prime number?

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27. Two dice with face numbers 1 to 6 are rolled together.

a) What is the probability of getting same

numbers?

b) What is the probability of getting a sum 8 ?

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28. A box contains slips numbered prime numbers from 1 to 10 and another box contains odd numbers from 1 to 10. If one slips taken from each.

a) What is the probability of both being prime numbers?

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29. One is asked to say a three digit number

a) What is the probability of three digits being same?

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30. In class $10\text{-}A$, there are 30 bóys and 20 girls In $10\text{-}B$, there are 15 boys and 25 girls One student is to be selected from each class

i) What is the probability of both being girls?

ii) What is the probability of both being boys?

iii) What is the probability of one boy and one girl?

iv) What is the probability of atleast one boy?

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31. One is asked to say a two-digit number

i) What is the probability of both digits being the same?

ii) What is the probability of the first digit being larger?

iii) What is thè probability of the first digit being smalle̤r?

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32. Each two - digit number is written on a paper slip and these are all put in a box What is the probability that the product of the digits of a number drawn is ia prime number? What if three - digits numbers are used Instead?

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33. Two dice with faces numbered from 1 to 6 are rolled together. What are the possible sums? Which of these sums has the maximum probability?

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34. Two coins are tossed Find the probability of getting?

a) a head

b) two heads

c) at least one head

d) at most one head

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35. What is the probability of occuring 5 Saturdays in the month of January?

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36. What is the probability of occuring 4 Wednesdays in 23 consecutive days in a

month?

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37. In the figure a triangle is drawn byjoining the alternate vertices of a regular hexagon A fine is placed into the figure at random '(##VPU_TTT_MAT_X_P01_C03_E08_004_Q01##)' What is the probability of failing the dọt in the triangle.

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38. In 10 A class, these are 20 boys and 20 girls and '10' B class, 15 ,boys and 25 girls For participating in a quiz cmpetition, if one student from each class is selected, What is the probability of

a) Selecting both Students boys

b) Selecting only one girl and one boy

c) Selecting at least one girl.

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39. In the figure 'M' is the centre of the larger circle, A small circle is drawn with diameter aș the radius of the larger circle as shown in the figure, without looking into the figure, a point is marked '(##VPU_TTT_MAT_X_P01_C03_E08_006_Q01##)' What is the probability that the point is inside the smaller circle?

What is the probability that the point is outside the smaller circle?

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40. A box contains 10 black beads and 15 white beads Another box contains 11 black beads and 17 white beads Without looking, a bead is drawn from each box

i) What is the probability of getting a black bead from the first box?

ii) What is the probability of getting a black bead from the second box?

iii) Which box give more chance to get a white bead Why?

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41. Paper slips with number 1 to 50 are kept in a box If one slip is taken without looking into it

a) What is the probability of getting an even number?

b) What is the probability of getting a multiple of 3 or '7 ?'

c) What is the probability of getting a prime number?

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42. 12 balls are in a box. 5 among them are blue and others are black. Without looking into the box, one ball is taken

a) Find the probability of getting a blue ball?

b) After putting one blue ball and one black ball into the basket, a ball is taken. Is the probability of getting a blue ball increases or decreases? Justify your answer.

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43. In the figure,

'(##VPU_TTT_MAT_X_P01_C03_E09_002_Q01##)'

'M' is the centre of the larger circle A smaller circle is drawn with diameter as the radius of the larger circle as shown in the figure Without looking in to the figure, a point is marked What is the probability that the point is inside the smaller circle? What is the probability that the point is outside the smaller circle?

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44. How many three digit numbers can be written using digits 4,6, and 9 without repeating the digits?

i) What is the probability that the numbers are odd numbers?

ii) What is the probability that the numbers are even numbers?

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45. i) In the figure 'ABCD', is a square If a is put in it without looking in it,

'(##VPU_TTT_MAT_X_P01_C03_E09_004_Q01##)'

i) What is the probability of it would be within the square?

ii) What is the probability of it would be within the triangle ABE?

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46. a) How many two digit numbers are there in all?

b) If we choose one number from the two digit numbers, what is the probability that the sum of the digits of that number will be 10?

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47. In the figure, a is the length and b is the width of the rectangle If we put a inside the rectangle without looking into it, what is the

probability that it will be inside the circle?

'(##VPU_TTT_MAT_X_P01_C03_E10_002_Q01##)'

48. A box contains beads of different colors There are total 200 beads in it One bead is taken at random The probability that it is blue is 0.98 Then,

a) How many blue beads are there in the box?

b) Some blue beads are removed from the box

Now probability of blue bead becomes 0.96 So how many blue beads are removed?

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49. A box cointains paper slips numbered from 1 to 4 Another box contains slips numbered from 2 to 4 If one slip is taken from each box,

a) Write all the possible pairs

b) What is the probąbility that the product of numbers in each slip is a multiple of '3 ?'

c) What is the probability that one number is square of the other?

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50. In 10 A class, these are 20 boys and 20 girls and '10' B class, 15 ,boys and 25 girls For participating in a quiz cmpetition, if one student from each class is selected, What is the probability of

a) Selecting both Students boys

b) Selecting only one girl and one boy

c) Selecting at least one girl.

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51. One is asked to say a three digit number

What is the probability that

a) all the digits of the number are same?

b) The number is miultiple of 6 .

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52. The letters of the word MALAYALAM are written in paper slips and put into a box A child is asked to take one slip from the box without looking

a) What is the probability of getting the letter A?

b) What is the probability of not getting A?

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53. There are 30 scouts and 20 guides in a school In another school, there are 20 scouts and 15 guides From each school, one student among them is to be selected for participation in a seminar a) What is the total number of possible selections? b) What is the probability of both being Scouts? c) What is the probability of both being guides? d) What is the probability of one scout and one guide?

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54. In the figure, the shaded triangle is drawn by joining the mid point of the sides of large triangle. Calculate the probability of a dot put on larger triangle to be within the shaded triangle.

'(##VPU_TTT_MAT_X_P01_C03_E13_001_Q01##)'

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55. From all two digit numbers with each digit '1,2,3,4' or 5, one number is chosen:

a) What is the probability of both digits being

the same?

b) What is the probability of the sum of the digits being '8 ?'

c) What is the probability that it is a multiple of '5 ?'

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56. A bag contains some red and green balls If we take a ball from it, without looking the probability of getting a red ball is '1/4'

a) What is the total number of balls, if there

are 8 red balls?

b) What is the probability that a ball taken is green?

c) Find the sum of both the probabilities

d) From a box containing some red balls and some blue balls the probability of getting a redball is ' a/ b'

What is the probability of getting a blue ball?

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57. A box contains some green and blue balls 7 red balls are put into it Now the probability of getting a red ball from the box is '7/(24)' and that of a blue bail is '1/3'

a) How many balls are there in the box?

b) How many of them are blue?

c) What is the probability of getting a green ball from the box?

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58. What is the probability of getting 5 sundays in December in a calender year?

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59. A vessel contains 4 black beads, 6 white beads, and 10 red beads Another vessel contains 7 black beads, 5 white beads and 8 red beads If we take one bead from each vessel, without looking into it,

a) What is the probability of both being same

colour?

b) What is the probability of both being different colours?

c) What is the probability of getting alleast one black bead?

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60. 25 girls and 20 boys are studying in standard 10 A .20 girls and 15 boys are in 10 B .One student from each division is to be selected for a competition

i) What is the probability of getting both are girls?

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61. A box contains 5 white balls and some black balls

A ball is taken from the box

a) What is the number of black balls If the probability of black ball is twice the probability of white balls

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62. A box contains same size of 27 cards: Of these some are green and some are yellow A card is taken from the box, without looking into ịt, if the probability of the card become green is $\frac{1}{3}$

a) What is the number of green cards?

b) If a green card and 2 yellow cards are put in the box and a card is taken without looking into it What is the probability of it being green?

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