



MATHS

BOOKS - RD SHARMA MATHS (HINGLISH)

MEAN AND VARIANCE OF A RANDOM VARIABLE

Solved Examples And Exercises

1. Find the probability distribution of the number of doublets in four throws of a pair of dice. Also find the mean and variance of this distribution.



[Watch Video Solution](#)

2. A random variable X can take all non-negative integral values and the probability that X takes the value r is proportional to α^r

 [Watch Video Solution](#)

3. The random variable X has a probability distribution $P(X)$ of the following form, where k is some number : $P(X) = \{(k, \text{ if } x = 0), (2k, \text{ if } x = 1), (3k, \text{ if } x = 2), (\text{otherwise})\}$

(a) Determine k . (b) Find $P(X < 2)$, $P(X \leq 2)$, $P(X \geq 2)$

 [Watch Video Solution](#)

4. An unbiased die is thrown twice. Find the probability distribution of the number of sixes.

 [Watch Video Solution](#)

 [Watch Video Solution](#)

5. Four bad oranges are mixed accidentally with 16 good oranges. Find the probability distribution of the number of bad oranges in a draw of two oranges.

 [Watch Video Solution](#)

6. An urn contains 4 white and 6 red balls. Four balls are drawn at random from the urn. Find the probability distribution of the number of white balls.

 [Watch Video Solution](#)

7. Three cards are drawn form a pack of 52 playing cards. Find the probability distribution of the number of aces.



[Watch Video Solution](#)

8. A discrete random variable X has the following probability distribution: $X: 1234567$ $P(X): c2c2c3 \dots 22c^{27}c^2 + c$ Find the value of c . Also, find the mean of the distribution.



[Watch Video Solution](#)

9. Four balls are to be drawn without replacement from a box containing 8 red and 4 white balls. If X denotes the number of red balls drawn, find the probability distribution of X .



[Watch Video Solution](#)

10. A run contains 4 white and 3 red balls. Find the probability distribution of the number of red balls in a random draw of three balls.

 [Watch Video Solution](#)

11. A probability distribution of a variable X is given below:

$X: 01234$ $P(X): 0.10.250.30.20.15$ Find (i) $Var(X)$ (ii)

$$Var\left(\frac{X}{2}\right)$$

 [Watch Video Solution](#)

12. A random variable X as the following probability distribution:

$x_i: -2 -10123$ $p_i: 0.1k0.22k0.3k$ Find (i) Find the value of k .

(ii) Calculate the mean of X . Calculate the variance of X .



[Watch Video Solution](#)

 [Watch Video Solution](#)

13. The probability distribution of a discrete random variable X is given as under: $X: 1242A3A5A$ $P(X): \frac{1}{21} / \frac{53}{25} \frac{1}{10} \frac{1}{25} \frac{1}{25}$

Calculate: The value of A , if $E(X) = 2.94$ (ii) Variance of X .

 [Watch Video Solution](#)

14. Two cards are drawn successively with replacement from a well-shuffled pack of 52 cards. Find the probability distribution of the number of kings.

 [Watch Video Solution](#)

15. The probability distribution of a random variable X is given as _____ under:

$P(X = x) = \begin{cases} kx^2 & \text{or } x = 1, 2, 3 \\ 2kx & \text{or } x = 4, 5, 6 \\ 0 & \text{otherwise} \end{cases}$

, where k is a constant. Find (i) $P(X \geq 4)$ (ii) $E(X)$ (iii) $E(3X^2)$



[Watch Video Solution](#)

16. In a game 3 coins are tossed. A person is paid Rs. 5, if he gets all head or all tail and be in supposed pay Rs. 3 if he gets are head or 2 heads. What can be expert to win on an arrange per game.



[Watch Video Solution](#)

17. There are 5 cards numbered 1 to 5, one number on one card. Two cards are drawn at random without replacement. Let X denote the sum of the numbers on two cards drawn. Find the mean and variance.



 [Watch Video Solution](#)

18. Two cards are drawn without replacement from a well-shuffled deck of 52 cards. Determine the probability distribution of the number of face cards (i.e. Jack, Queen, King and Ace).

 [Watch Video Solution](#)

19. Find the probability distribution of the number of green balls drawn when 3 balls are drawn, one by one, without replacement from a bag containing 3 green and 5 white balls.

 [Watch Video Solution](#)

20. From a lot of 10 items containing 3 defectives, a sample of 4 items is drawn at random. Let the random variable X denote the

number of defective items in the sample. If the sample is drawn randomly, find (i) the probability distribution of X (ii) $P(X \leq 1)$ (iii) $P(X < 1)$ (iv) $P(0 < X < 2)$

 [Watch Video Solution](#)

21. We take 8 identical slips of paper, write the number 0 on one of them, the number 1 on three of the slips, the number 2 on three of the slips and the number 3 on one the ships. These slips are folded, put in a box and thoroughly mixed. One slip is drawn at random from the box. If X is the random variable denoting the number written on the drawn slip, find the probability distribution of X .

 [Watch Video Solution](#)

22. A die is loaded in such a way that an even number is twice likely to occur as an odd number. If the die is tossed twice, find the probability distribution of the random variable X representing the perfect squares in the two tosses.



[Watch Video Solution](#)

23. Two biased dice are thrown together. For the first die $P(6) = \frac{1}{2}$, other scores being equally likely while for the second die, $P(1) = \frac{2}{5}$ and other scores are equally likely. Find the probability distribution of the number of ones seen.



[Watch Video Solution](#)

24. The probability distribution function of a random variable X is given by $x_i : 0, 1, 2, \dots, 12$ $p_i : 3c^{34}c - 10c^{25}c - 1$ Where $c > 0$ Find : (i) c

(ii) $P(X < 2)$ (ii) $P(1 < X \leq 2)$



[Watch Video Solution](#)

25. Two cards are drawn successively without replacement from a well shuffled pack of 52 cards. Find the probability distribution of the number of aces.



[Watch Video Solution](#)

26. Three cards are drawn successively with replacement from a well-shuffled deck of 52 cards. A random variable X denotes the number of hearts in the three cards drawn. determine the probability distribution of X .



[Watch Video Solution](#)

27. A fair die is tossed twice. If the number appearing on the top is less than 3, it is a success. Find the probability distribution of number of successes.

 [Watch Video Solution](#)

28. Find the probability distribution of the maximum of two scores obtained when a die is thrown twice. Determine also the mean of the distribution.

 [Watch Video Solution](#)

29. A random variable X has the following probability distribution: $x_i: -2, -1, 0, 1, 2, 3$ $p_i: 0.1k, 0.22k, 0.3k, 0.22k, 0.1k, 0.1k$ Find (i) Find the value of k . (ii) Calculate the mean of X . Calculate the variance of X .



[Watch Video Solution](#)

30. Find the mean number of heads in three tosses of a fair coin.



[Watch Video Solution](#)

31. There are 5 cards numbered 1 to 5, one number on one card.

Two cards are drawn at random without replacement. Let X denote the sum of the numbers on two cards drawn. Find the mean and variance.



[Watch Video Solution](#)

32. From a lot of 10 items containing 3 defectives, a sample of 4 items is drawn at random. Let the random variable X denote the

number of defective items in the sample. If the sample is drawn randomly, find (i) the probability distribution of X (ii) $P(X \leq 1)$ (iii) $P(X < 1)$ (iv) $P(0)$

 [Watch Video Solution](#)

33. Determine which of the following can be probability distributions of a random variable $X \rightarrow X: 0 \ 1 \ 2$
 $P(X): 0.4 \ 0.4 \ 0.2$

 [Watch Video Solution](#)

34. Determine which of the following can be probability distributions of a random variable $X: X: 0 \ 1 \ 2$
 $P(X): 0.6 \ 0.1 \ 0.2$

 [Watch Video Solution](#)

35. Determine which of the following can be probability distributions of a random variable X :

X :	0	1	2	3	4
$P(X)$:	0.1	0.5	0.2	-0.1	0.3

 [Watch Video Solution](#)

36. 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.

$$P(X=x) = \begin{cases} 0.1 & \text{if } x=0, \\ kx & \text{if } x=1, \\ 2k(5-x) & \text{if } x=3 \text{ or } 4, \\ 0 & \text{otherwise} \end{cases}$$

 [Watch Video Solution](#)

37. A random, variable X has the following probability distribution:

$X: 0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7$

$P(X): 0 \ k \ 2k \ 2k \ 3k \ k^2 \ 2k^2 \ 7k^2 + k$ Find each of the following: i. k ii. $P(X < 6)$ iii. $P(X \geq 6)$ iv. $P(0 < X < 5)$



Watch Video Solution

38. Find the probability distribution of X ; the number of heads in two tosses of a coin (or a simultaneous toss of two coins).



Watch Video Solution

39. A coin is tossed until a head appears or the tail appears 4 times in succession. Find the probability distribution of the number of tosses.



Watch Video Solution

 Watch Video Solution

40. 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 Video Solution

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



Watch Video Solution

42. Check the following distributions of probability of random variable X is the probability distributions? $X: 0 \ 1 \ 2$
 $P(X): 0.6 \ 0.4 \ 0.2$



[Watch Video Solution](#)

43. Which of the following distributions of probability of random variable X are the probability distributions? $X: 0 \ 1 \ 2 \ 3 \ 4$
 $P(X): 0.1 \ 0.5 \ 0.2 \ 0.1 \ 0.1$



[Watch Video Solution](#)

44. Which of the following distributions of probability of random variable X are the probability distributions? $X: 0 \ 1 \ 2 \ 3$
 $P(X): 0.3 \ 0.2 \ 0.4 \ 0.1$



[Watch Video Solution](#)

45. A random variable X has the following probability distribution:

Values of X :	-2	-1	0	1	2	3
-----------------	------	------	-----	-----	-----	-----

$$P(X): 0.1k \quad 0.2 \quad 2k \quad 0.3k$$

 [Watch Video Solution](#)

46. A random variable X has the following probability distribution:

Values of X :	0	1	2	3	4	5	6	7	8
-----------------	-----	-----	-----	-----	-----	-----	-----	-----	-----

$P(x): a \quad 3a \quad 5a \quad 7a \quad 9a \quad 11a \quad 13a \quad 15a \quad 17a$ Determine: (i). The value of a (ii) $P(X < 3)$, $P(X \geq 3)$, $P(0 < X < 5)$

 [Watch Video Solution](#)

47. Let X be a random variable which assumes values x_1, x_2, x_3, x_4 such that

$$2P(X = x_1) = 3P(X = x_2) = P(X = x_3) = 5P(X = x_4).$$

Find the probability distribution of X.



[Watch Video Solution](#)

48. Two cards are drawn from a well shuffled pack of 52 cards.

Find the probability distribution of the number of aces.



[Watch Video Solution](#)

49. Find the probability distribution of the number of heads when three coins are tossed.



[Watch Video Solution](#)

50. Four cards are drawn simultaneously from a well shuffled pack of 52 playing cards. Find the probability distribution of the number of aces.

 [Watch Video Solution](#)

51. A bag contains 4 red and 6 black balls. Three balls are drawn at random. Find the probability distribution of the number of red balls.

 [Watch Video Solution](#)

52. Five defective mangoes are accidentally mixed with 15 good ones. Four mangoes are drawn at random from this lot. Find the probability distribution of the number of defective mangoes.

 [Watch Video Solution](#)

 [Watch Video Solution](#)

53. Two dice are thrown together and the number appearing on them noted. X denotes the sum of the two numbers. Assuming that all the 36 outcomes are equally likely, what is the probability distribution of X ?



[Watch Video Solution](#)

54. 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 .



[Watch Video Solution](#)

55. Five defective bolts are accidentally mixed with twenty good ones. If four bolts are drawn at random from this lot, find the probability distribution of the number of defective bolts.



Watch Video Solution

56. Two cards are drawn successively with replacement from a well-shuffled pack of 52 cards. Find the probability distribution of the number of kings.



Watch Video Solution

57. Find the probability distribution of the number of white balls drawn in a random draw of 3 balls without replacement from a bag containing 4 white and 6 red balls.



[Watch Video Solution](#)

58. From a lot containing 25 items, 5 of which are defective, 4 are, chosen at random. Let X be the number of defectives found. Obtain the probability distribution of X if the items are chosen without replacement.



[Watch Video Solution](#)

59. An urn contains 4 white and 3 red balls. Find the probability distribution of the number of red balls in a random draw of three balls.



[Watch Video Solution](#)

60. Two cards are drawn from a pack of well shuffled 52 cards one by one with replacement. Getting an ace or a spade is considered a success. Find the probability distribution for the number of successes.

 [Watch Video Solution](#)

61. 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 ?

 [Watch Video Solution](#)

62. From a lot of 10 bulbs, which includes 3 defectives, a sample of 2 bulbs is drawn at random. Find the probability distribution of the number of defective bulbs.



[Watch Video Solution](#)

63. The probability distribution of a random variable X is given below: $X: 0 \ 1 \ 2 \ 3$ $P(X): k \ \frac{k}{2} \ \frac{k}{4} \ \frac{k}{8}$ (i) Determine the value of k (ii) Determine $P(X \leq 2)$ and $P(X > 2)$ (iii) Find $P(X \leq 2) + P(X > 2)$



[Watch Video Solution](#)

64. 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 Video Solution](#)

65. In a single throw of a dice; if X denotes the number on its upper face. Find the mean of X .



[Watch Video Solution](#)

66. A dealer in refrigerators estimates from his past experience the probabilities of his selling refrigerators in a day. These are as follows: No of refrigerators sold in a day: 0 1 2 3 4 5 6 Probability 0.03 0.20 0.23 0.25 0.12 0.10 0.07 Find the mean number of refrigerators sold in a day.



[Watch Video Solution](#)

67. A salesman wants to know the average number of units he sells per sales call. He checks his past sales records and comes up with the following probabilities:: Sales (in units): 0 1 2 3 4 5

Probability 0.15 0.20 0.10 0.05 0.30 0.20 . What is the average number of units he sells per sale call?



[Watch Video Solution](#)

68. The random variable X can take only the values 0; 1; 2. Given that $P(X = 0) = P(X = 1) = p$ and that $E(X^2) = E(X)$; find the value of p .



[Watch Video Solution](#)

69. Two dice are thrown simultaneously. If X denotes the number of sixes, find the expectation of X .



[Watch Video Solution](#)

70. Two numbers are selected at random (without replacement) from the first five positive integers. Let X denote the larger of the two numbers obtained. Find the mean and variance of X

 [Watch Video Solution](#)

71. 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 $\text{Var}(X)$.

 [Watch Video Solution](#)

72. 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 .

 [Watch Video Solution](#)

73. Find the probability distribution of the number of success in two tosses of a die, where a success is defined as "getting a number greater than 4". Also, find the mean and variance of the distribution.

 [Watch Video Solution](#)

74. Two cards are drawn successively with replacement from a well shuffled deck of 52 cards. Find the mean and standard deviation of the number of aces.

 [Watch Video Solution](#)

75. A fair coin is tossed until a head or five tails occur. If X denotes the number of tosses of the coin, find mean of X .



[Watch Video Solution](#)

76. 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 Video Solution](#)

77. In a group of 30 scientists working on an experiments 20 never commit error in their work and are reporting results elaborately. Two scientists are selected at random from the

group. Find the probability distribution of the number of selected scientists who never commit error in the work and reporting. Also, find the mean of the distribution. What values are described in the question?



[Watch Video Solution](#)

78. Find the mean and standard deviation of the following probability distribution: $x_i : 2 \ 3 \ 4$ $p_i : 0.2 \ 0.5 \ 0.3$



[Watch Video Solution](#)

79. Find the mean and standard deviation of each of the following probability distribution: $x_i : 1 \ 3 \ 4 \ 5$ $p_i : 0.4 \ 0.1 \ 0.2 \ 0.3$



[Watch Video Solution](#)

80. Find the mean and standard deviation of the following

probability distribution: $x_i: -5 -4 1 2$ $p_i: \frac{1}{4} \frac{1}{8} \frac{1}{2} \frac{1}{8}$



Watch Video Solution

81. Find the mean and standard deviation of the following

probability distribution: $x_i: -1 0 1 2 3$

$p_i: 0.3 0.1 0.1 0.3 0.2$



Watch Video Solution

82. Find the mean and standard deviation of the following

probability distribution: $x_i: 1 2 3 4$ $p_i: 0.4 0.3 0.2 0.1$



Watch Video Solution

83. Find the mean and standard deviation of the following probability distribution: $x_i: -2 -1 0 1 2$

$p_i: 0.1 0.2 0.4 0.2 0.1$

 [Watch Video Solution](#)

84. Find the mean and standard deviation of the following probability distribution: $x_i: -3 -1 0 1 3$

$p_i: 0.05 0.45 0.20 0.25 0.05$

 [Watch Video Solution](#)

85. Find the mean and standard deviation of the following probability distribution: $x_i: 0 1 2 3 4 5$

$p_i: \frac{1}{6} \frac{5}{18} \frac{2}{9} \frac{1}{6} \frac{1}{9} \frac{1}{18}$

 [Watch Video Solution](#)

86. A discrete random variable X has the probability distribution given below: $X: 0.5 \ 1 \ 1.5 \ 2 \ P(X): k \ k^2 \ 2k^2 \ k$ i. Find the value of k . ii. Determine the mean of the distribution.



[Watch Video Solution](#)

87. Find the mean variance and standard deviation of the following probability distribution $x_i: a \ b \ p_i: p \ q$ Where $p + q = 1$.



[Watch Video Solution](#)

88. 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 Video Solution](#)

89. Two bad eggs are accidentally mixed up with ten good ones. Three eggs are drawn at random with replacement from this lot. compute the mean for the number of bad eggs drawn.



[Watch Video Solution](#)

90. Pair of fair dice is thrown. Let X be the random variable which denotes the minimum of the two numbers which appear. Find the probability distribution, mean and variance of X .



[Watch Video Solution](#)

91. A fair coin is tossed four times. Let X denote the number of heads occurring. Find the probability distribution, mean and variance of X .

 [Watch Video Solution](#)

92. A fair die is tossed. Let X denote twice the number appearing. Find the probability distribution, mean and variance of X .

 [Watch Video Solution](#)

93. A fair die is tossed. Let X denote 1 or 3 according as an odd or an even number appears. Find the probability distribution, means variance of X .

 [Watch Video Solution](#)

94. A die is tossed twice A success is getting an odd number on a toss. Find the variance of the number of successes.

 [Watch Video Solution](#)

95. Three cards are drawn at random (without replacement) from a a well shuffled pack of 52 cards. Find the probability distribution of number of red cards. Hence find the mean of the distribution.

 [Watch Video Solution](#)

96. An urn contains 5 red 2 black balls. Two balls are randomly drawn, without replacement. Let X represent the number of black

balls drawn. What are the possible values of X ? Is X a random variable? if yes, find the mean and variance of X .



[Watch Video Solution](#)

97. Two numbers are selected at random (without replacement) from positive integers 2, 3, 4, 5, 6 and 7. Let X denote the larger of the two numbers obtained. Find the mean and variance of the probability distribution of X .



[Watch Video Solution](#)

98. Write the values of a for which the following distribution of probabilities becomes a probability distribution:

$$X = x_i: -2 \quad -1 \quad 0 \quad 1$$

$$P(X = x_i): \frac{1-a}{4} \quad \frac{1+2a}{4} \quad \frac{1-2a}{4} \quad \frac{1+a}{4}$$



 [Watch Video Solution](#)

99. For what value of k the following distribution is a probability distribution?

$$X = x_i: 0 \ 1 \ 2 \ 3$$

$$P(X = x_i): 2k^4 \ 3k^2 - 5k^3 \ 2k - 3k^2 \ 3k - 1$$

 [Watch Video Solution](#)

100. In a single throw of a dice; if X denotes the number on its upper face. Find the mean of X .

 [Watch Video Solution](#)

101. If the probability distribution of a random variable X is given by $X = x_i: 1 \ 2 \ 3 \ 4$ $P(X = x_i): 2k \ 4k \ 3k \ k$ Write the value of k .



Watch Video Solution

102. Find the mean of the following probability distribution:

$$X = x_i: \quad 1 \quad 2 \quad 3 \quad P(X = x_i): \quad \frac{1}{4} \quad \frac{1}{8} \quad \frac{5}{8} .$$



Watch Video Solution

103. If the probability distribution of a random variable X is as given below: $X = x_i: 1 \quad 2 \quad 3 \quad 4 \quad P(X = x_i): c \quad 2c \quad 3c \quad 4c$ Write the value of $P(X \leq 2)$.



Watch Video Solution

104. A random variable X has the following probability distribution: $X = x_i: 1 \quad 2 \quad 3 \quad 4 \quad P(X = x_i): k \quad 2k \quad 3k \quad 4k$ Write

the value of $P(X \geq 3)$.



Watch Video Solution

105. A random variable X has the following probability distribution:

Values of X :	0	1	2	3	4	5	6	7	8
$P(x)$:	a	$3a$	$5a$	$7a$	$9a$	$11a$	$13a$	$15a$	$17a$

Determine: (i). The value of a (ii) $P(X < 3)$, $P(X \geq 3)$, $P(0 < X < 5)$



Watch Video Solution

106. A random variable has the following probability distribution:

1	2	3	4	5	6	7	8
For the events $E = [X: X \text{ is a prime number}]$, $F = \{X: X < 4\}$, the probability $P(E \cup F)$ is							
0.50 b. 0.77							
c. 0.35 d. 0.87							



Watch Video Solution

107. A random variate X takes the values 0, 1, 2, 3 and its mean is 1.3. If $P(X = 3) = 2P(X = 1)$ and $P(X = 2) = 0.3$, then $P(X = 0)$ is equal to

 [Watch Video Solution](#)

108. A random variable has the following probability distribution:

$X = x_i: 0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7$

$P(X = x_i): 0 \ 2p \ 2p \ 3p \ p^2 \ 2p^2 \ 7p^2 + p$ The value of p is a. $\frac{1}{10}$

b. -1 c. $-\frac{1}{10}$ d. $\frac{1}{5}$

 [Watch Video Solution](#)

109. If X is a random variable with probability distribution as given below: $X = x_i: 0 \ 1 \ 2 \ 3 \ P(X = x_i): k \ 3k \ 3k \ k$ The

value of k and its variance are (A) $\frac{1}{8}, \frac{22}{27}$ (B) $\frac{1}{8}, \frac{23}{27}$ (C) $\frac{1}{8}, \frac{24}{27}$
(D) $\frac{1}{8}, \frac{3}{4}$



[Watch Video Solution](#)

110. The probability distribution of a discrete random variable X is given below: $X: 2 \ 3 \ 4 \ 5 \ P(X): \frac{5}{k} \ \frac{7}{k} \ \frac{9}{k} \ \frac{11}{k}$ The value of $E(X)$ is a. 8 b. 16 c. 32 d. 48



[Watch Video Solution](#)

111. For the following probability distribution:
 $X: -4 \ -3 \ -2 \ -1 \ 0 \ P(X): 0.1 \ 0.2 \ 0.3 \ 0.2 \ 0.2$ The value of $E(X)$ is a. 0 b. -1 c. -2 d. -1.8



[Watch Video Solution](#)

112. For the following probability distribution: $X: 1\ 2\ 3\ 4$
 $P(X): 1/10\ 1/5\ 3/10\ 2/5$ The value of $E(X^2)$ is 3 b. 5 c. 7 d.
10



Watch Video Solution

113. Let X be the discrete random variable. Then the variance of X is a. $E(X^2)$ b. $E(X^2) + (E(X))^2$ c. $E(X^2) - (E(X))^2$ d.
 $\sqrt{E(X^2) - (E(X))^2}$



Watch Video Solution

Others

1. Find the mean, variance and standard deviation of the number of heads in a simultaneous toss of three coins.



[View Text Solution](#)

2. Determine which of the following can be probability distributions of a random variable X :

$X: 0 \ 1 \ 2$
 $P(X): 0.4 \ 0.4 \ 0.2$



[Watch Video Solution](#)

3. The probability distribution of the discrete random variables X and Y are given below:

$X: 0 \ 1 \ 2 \ 3 \ Y: 0 \ 1 \ 2 \ 3$
 $P(X): \frac{1}{52} \ / \ \frac{51}{51} \ / \ 5 \ P(Y): \frac{1}{5} \ \frac{3}{10} \ \frac{2}{51} \ / \ (10)$



[View Text Solution](#)

4. A biased die is such that $P(4) = \frac{1}{10}$ and other scores being equally likely. The die is tossed twice if X is the number of fours seen, find the variance of the random variable X .



[View Text Solution](#)

5. Find the mean and variance of the number of heads in the two tosses of a coin.



[View Text Solution](#)

6. In roulette, fig the wheel has 13 numbers 0,1,2,...,12 marked on equally spaced slots. A player sets Rs. 10 on a given number. He receives Rs. 100 from the organiser of the game if the ball comes to rest in this slot, otherwise he gets nothing. If X denotes the players net gain/loss, find $E(X)$.



[View Text Solution](#)

7. A die is tossed twice. A success is getting an odd number on a toss. Find the variance of the number of successes.



[Watch Video Solution](#)