MATHS

BOOKS - R G PUBLICATION

PROBABILITY

Example

1. Explain the following terms with suitable examples: F-centres

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2. Explain the following terms with the help of examples.(ii) Event

3. Explain the following terms with the help of examples.(iii) Equally likely events

4. Explain the following terms with the help of examples.(iv) Simple event

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5. Explain the following terms with the help of examples.(v) Compound event

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6. What is understood by the mathematical probability of an event E?. Give one example each of the following :(i) Sure event

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7. What is understood by the mathematical probability of an event E?. Give one example each off the following :(ii) Impossible event

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8. What is understood by the mathematical probability of an event E?. Give one example each off the following :(iii) Complementary event

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9. Fill in the blanks :(i)For any event E, the value of P(E) is ____than 1 and ___than 0.

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10. Fill in the blanks :(ii)For any event E,the value of the complementary event $\overline{E}$ is___

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11. Fill in the blanks :(iii)If $W_1, W_2, W_3, \ldots . W_n$ are all the equally likely and simple events of any trial, then $P(W_1) + P(W_2) + \ldots . P(W_n)$=____

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12. Mention the reasons for the following events being or not being equally likély to occur.(a).One red, one blue and one green marbles are in a bag.One marble is drawn out randomly from the bag.(i) the events of the marble being red

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13. Mention the reasons for the following events being or not being equally likély to

occur.(a).One red, one blue and one green marbles are in a bag.One marble is drawn out randomly from the bag.(ii)the event of the marble being green

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14. Mention the reasons for the following events being or not being equally likély to occur.(a).One red, one blue and one green marbles are in a bag.One marble is drawn out

randomly from the bag.(iii)the event of the marble being blue

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15. Mention the reasons for the following events being or not being equally likély to occur.(b)There are 5 red marbles, 2 blue marbles and 2 green marbles in a bag.A marble is drawn out randomly from the bag. The events of the marble beings___(i)red

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16. Mention the reasons for the following events being or not being equally likély to occur.(b)There are 5 red marbles, 2 blue marbles and 2 green marbles in a bag.A marble is drawn out randomly from the bag. The events of the marble beings__(ii)blue

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17. Mention the reasons for the following events being or not being equally likély to

occur.(b)There are 5 red marbles, 2 blue marbles and 2 green marbles in a bag.A marble is drawn out randomly from the bag. The events of the marble beings___(iii) green

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18. Out of the six faces of a die, three are marked with the number 2,two are marked with the number 1 and one is marked with the number 3.The die is tossed once. Find in how

many ways the following events may occur : (i) the event of getting the number 1

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19. Out of the six faces of a die, three are marked with the number 2,two are marked with the number 1 and one is marked with the number 3.The die is tossed once. Find in how many ways the following events may occur :(ii) the event of getting the number 2

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20. Out of the six faces of a die, three are marked with the number 2,two are marked with the number 1 and one is marked with the number 3.The die is tossed once. Find in how many ways the following events may occur :(iii) the event of getting the number 3

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21. Out of the six faces of a die, three are marked with the number 2,two are marked

with the number 1 and one is marked with the number 3.The die is tossed once. Find in how many ways the following events may occur : (iv)the event of getting an even number

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22. Out of the six faces of a die, three are marked with the number 2,two are marked with the number 1 and one is marked with the number 3.The die is tossed once. Find in how

many ways the following events may occur :(v) the event of getting an odd number

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23. Which of the following numbers indicate mathematical probability?(i)4/3

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24. Which of the following numbers indicate mathematical probability?(ii)3/4

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25. Which of the following numbers indicate mathematical probability?(iii)-0.5

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26. Which of the following numbers indicate mathematical probability?(iv).3333...

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27. Which of the following numbers indicate mathematical probability?(v)$\sqrt{2}$

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28. Which of the following numbers indicate mathematical probability?(vi)1.237

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29. Which of the following numbers indicate mathematical probability?

(vii) 0.12121222122221.....

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30. If for any event E,P(E)=0.01,then find the value $P(\overline{E})when(\overline{E})$ means "an event of not happening E"

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31. There are ball pens with only blue refills in a packet.What are the probabilities of (i)an event of the pen being blue refilled

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32. There are ball pens with only blue refills in a packet.What are the probabilities of (ii) an event of the pen being red refilled

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33. Out of 65 students of class X, 40 are boys and 25 are girls.The class teacher wrote the serial numbers of all the students on separate cards and kept in a box in order to select a captain of the class. Then one of the cards is randomly taken out from the box. Find the probabilities of the class-captain being (i) a boy

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34. Out of 65 students of class X, 40 are boys and 25 are girls.The class teacher wrote the serial numbers of all the students or separate cards and kept in a box in order to select a captain of the class. Then one of the cards is randomly taken out from the box. Find the probabilities of the class-captain being (ii) a girl.

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35. Out of the 12 marbles kept in a pocket of Trilochan,4 are red, 6 are white and 2 are green. At the time of playing,he took out one marble randomly from his pocket. Find the probabilities of the marble (i) of being red

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36. Out of the 12 marbles kept in a pocket of Trilochan,4 are red, 6 are white and 2 are green. At the time of playing,he took out one

marble randomly from his pocket. Find the probabilities of the marble(ii)of being white

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37. Out of the 12 marbles kept in a pocket of Trilochan,4 are red, 6 are white and 2 are green. At the time of playing,he took out one marble randomly from his pocket. Find the probabilities of the marble(iii)of not being green.

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38. In a pond there are 40 Rau fishes, 25 Bhakua fishes and 20 Chital fishes. Before taking bath Paniram tried a throw of his fishing net in the pond. If one fish was caught in the net in one throw and there are equal possibilities of each fish being caught in the net, then find the probabilities of the fish caught(i) being a Rau fish

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39. In a pond there are 40 Rau fishes, 25 Bhakua fishes and 20 Chital fishes. Before taking bath Paniram tried a throw of his fishing net in the pond. If one fish was caught in the net in one throw and there are equal possibilities of each fish being caught in the net, then find the probabilities of the fish caught(ii) being a Bhakua fish

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40. In a pond there are 40 Rau fishes, 25 Bhakua fishes and 20 Chital fishes. Before taking bath Paniram tried a throw of his fishing net in the pond. If one fish was caught in the net in one throw and there are equal possibilities of each fish being caught in the net, then find the probabilities of the fish caught(iii)being a Chital fish

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41. Three coins are tossed together. Write down all the probable outcomes of the trial.Also find the probabilities of the events of getting (i)3-Heads

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42. Three coins are tossed together. Write down all the probable outcomes of the trial.Also find the probabilities of the events of getting(ii)2 Heads

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43. Three coins are tossed together. Write down all the probable outcomes of the trial.Also find the probabilities of the events of getting(iii)at least 2 Heads

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44. Three coins are tossed together. Write down all the probable outcomes of the

trial.Also find the probabilities of the events of getting(iv)a maximum of 2 Tails

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45. Three coins are tossed together. Write down all the probable outcomes of the trial.Also find the probabilities of the events of getting(v)a maximum of 3 Tails

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46. Identify all the probable simple events obtained from the trial of tossing a coin two times and find their probabilities. Also describe one impossible event and one sure event associated with the above trial.

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47. The six faces of a die are marked with the numbers 2,3,5,7,11 and 13 respectively. Mention all the probable simple events obtained from a

trial of tossing the die and find their probabilities. Also find the probaliilities of the events of (iii) getting a prime number

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48. One playing card is drawn from a well-shuffled pack of cards.Find the probabilities of the events of the card being (i) a Spade

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49. One playing card is drawn from a well-shuffled pack of cards.Find the probabilities of the events of the card being(ii) a Spade or a Heart

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50. One playing card is drawn from a well-shuffled pack of cards.Find the probabilities of the events of the card being(iii) a king or a jack

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51. One playing card is drawn from a well-shuffled pack of cards.Find the probabilities of the events of the card being(iv) the queen of Diamonds or the queen of Clubs.

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52. Out of some shirts brought for sale, 10 were found to be defective.If the probability of a randomly chosen shirt being not defective is

4/5,then find the total number of shirts brought for sale.

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53. In a game of lottery arranged at a Durgapuja fair, it is decided that one who gets the same number by tossing a dice two times will be the winner.To try his lot, Arun tosses the dice two times continuously. Find the probabilities of the events of his (i) being a winner

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54. In a game of lottery arranged at a Durgapuja fair, it is decided that one who gets the same number by tossing a dice two times will be the winner.To try his lot, Arun tosses the dice two times continuously. Find the probabilities of the events of his(ii)not being a winner

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Exercise

1. Probability of an event E + Probability of the event 'not E'=___.

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2. The probability of an event that cannot happen is___.Such an event is called___

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3. The probability of an event that is certain to happen is __.Such an event is called ___.

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4. The sum of the probabilities of all the elementary events of an experiment is ____.

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5. The probability of an event is greater than or equal to ____ and less than or equal to _____

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6. Which of the following experiments have equally likely outcomes? Explain.(i) A driver attempts to start a car. The car starts or does not start.

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7. Which of the following experiments have equally likely outcomes? Explain.(ii) A player

attempts to shoot a basketball. She/he shoots or misses the shot.

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8. Which of the following experiments have equally likely outcomes? Explain.(iii)A trial is made to answer a true-false question. The answer is right or wrong.

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9. Which of the following experiments have equalIy likely outcomes? Explain.(iv)A baby is born. It is a boy or a girl.

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10. Why is tossing a coin considered to be a fair way of deciding which team should get the ball at the beginning of a football game?

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11. Which of the following cannot be the probability of an event?

A. $\frac{2}{3}$

B. -1.5

C. 0.15

D. 0.7

Answer:

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12. If P(E) =0.05, what is the probability of not 'E'?

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13. A bag contains lemon flavoured candies only. Malini takes out one candy without looking into the bag. What is the probability that she takes out (i) an orange flavoured candy?

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14. A bag contains lemon flavoured candies only. Malini takes out one candy without looking into the bag. What is the probability that she takes out(ii) a lemon flavoured-candy

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15. It is given that in a group of 3 students, the probability of 2 students not having the same birthday is 0.992. What is the probability that the 2 students have the same birthday?

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16. A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is (i) réd?

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17. A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What

is the probability that the ball drawn is(ii) not red?

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18. A box contains 5 red marbles, 8 white marbles and 4 green marbles.One marble is taken out of the box at random. What is the probability that the marble taken out will be(i) red

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19. A box contains 5 red marbles, 8 white marbles and 4 green marbles.One marble is taken out of the box at random. What is the probability that the marble taken out will be(ii)white?

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20. A box contains 5 red marbles, 8 white marbles and 4 green marbles.One marble is taken out of the box at random. What is the

probability that the marble taken out will be

(iii) not green?

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21. A piggy bank contains hundred 50p coins, fifty Rs1 coins, twenty Rs2 coins and ten Rs 5coins. If is equally,likely that one of the coins will fall out when the bank is turned upside down, what is the.probability that the coin (i) will be a 50 p coin?

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22. A piggy bank contains hundred 50p coins, fifty Rs1 coins, twenty Rs2 coins and ten Rs5 coins. If is equally,likely that one of the coins will fall out when the bank is turned upside down, what is the.probability that the coin(ii)will not be a Rs 5 coin

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23. Gopi buys a fish from a shop for his aquarium. The shopheeper takes out one fish

at random from a tank containing 5 male fish and 8 female fish (see Fig. 15.4). What is the probability that the fish taken out is a male fish?

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24. A game of chance consists of spinning an arrow which comes to rest pointing at one of the numbers 1,2,3,4,5,6,7,8 , and these are equally likely out comes. What is the probability that it will point at

(i) 8?

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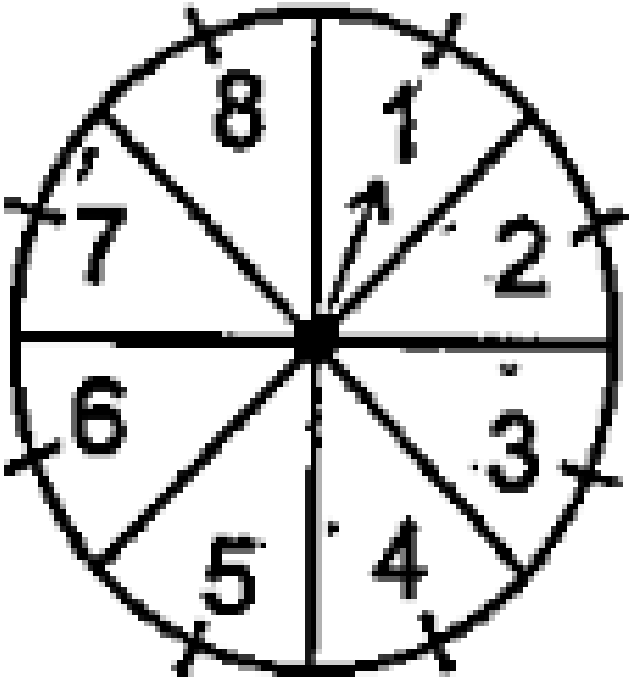
25. A game of chance consists of spinning an arrow which comes to rest pointing at one of

the numbers 1,2,3,4,5,6,7,8 (see Fig. 15.5), and these are equally likely out comes. What is the probability that it will point at



(ii) an odd number?

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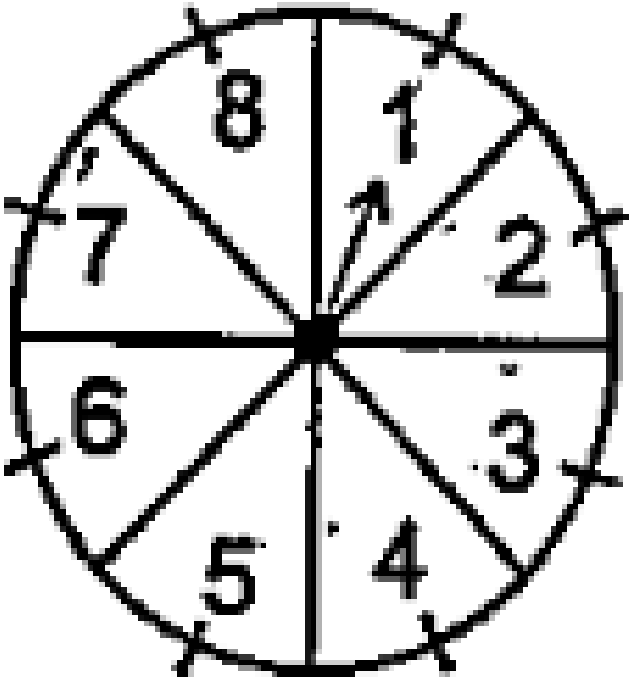
26. A game of chance consists of spinning an arrow which comes to rest pointing at one of the numbers 1,2,3,4,5,6,7,8 (see Fig. 15.5), and these are equally likely out comes. What is the probability that it will point at



(iii) a number greater than 2?

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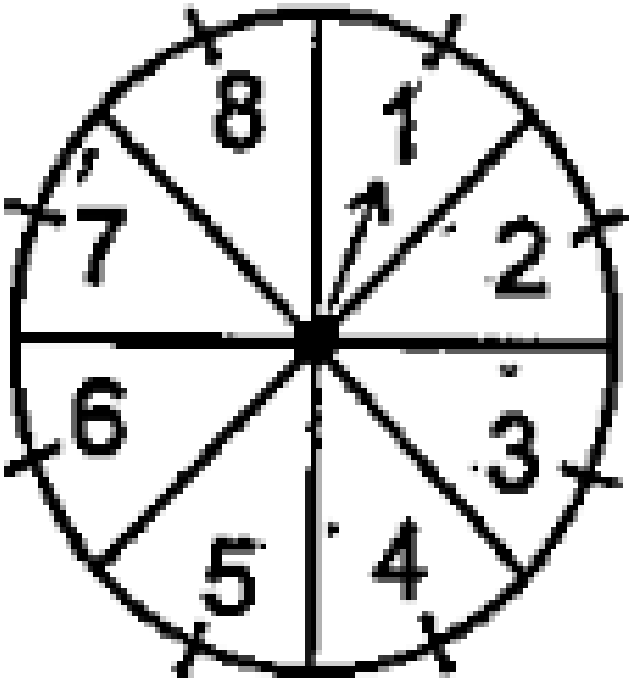
27. A game of chance consists of spinning an arrow which comes to rest pointing at one of

the numbers 1,2,3,4,5,6,7,8 (see Fig. 15.5), and these are equally likely out comes. What is the probability that it will point at (iv) a number less than 9?



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28. A die is thrown once. Find the probability of getting (i) a prime number,

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29. A die is thrown once. Find the probability of getting (ii) a number lying between 2 and 6,

Watch Video Solution

30. A die is thrown once. Find the probability of getting (iii) an odd number,

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31. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting (i) a king of red colour

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32. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting(ii) a face card

 Watch Video Solution

33. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting(iii)a red face card

 Watch Video Solution

34. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting(iv)thé jack of hearts

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35. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting(v)a spade

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36. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting(vi)the queen of diamonds

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37. Five cards— the ten,jack,quene,king and ace of diamonds,are well-shuffled with their face downwards. One card is then picked up at random.(i) What is the probability that the card is the queen?

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38. Five cards— the ten,jack,quene,king and ace of diamonds,are well-shuffled with their face downwards. One card is then picked up at random.(ii)If the queèn is drawn and put aside, what is the probability that the second card picked up is (a) an ace?

Watch Video Solution

39. Five cards— the ten,jack,queen,king and ace of diamonds,are well-shuffled with their

face downwards. One card is then picked up at random.(ii)If the queèn is drawn and put aside, what is the probability that the second card picked up is(b) a queen?

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40. 12 defective pens are accidentally mixed with 132 good ones.It is not possible to just look at a pen and tell whether or not it is defective. One pen is taken out at random

from this lot. Determine the probability that the pen taken out is a good one.

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41. A lot of 20 bulbs contain 4 defective ones. One bulbs is drawn at random from the lot. What is the probability that this bulb is defective?

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42. A lot of 20 bulbs contain 4 defective ones. One bulbs is drawn at random from the lot.Suppose the bulb drawn in (i) is not defective and is not replaced. Now one bulb is drawn at random from the rest. What is the probability that this bulb is not defective?

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43. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at

random from the box, find the probability that it bears (i) a two-digit number

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44. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears (ii) a perfect square numbers

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45. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears (iii) a number divisible by 5.

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46. A child has a die whose six faces show the letters as given below :

The die is thrown once. What is the probability of getting (i) A?

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47. A child has a die whose six faces show the letters as given below : The die is thrown once. What is the probability of getting(ii) D?

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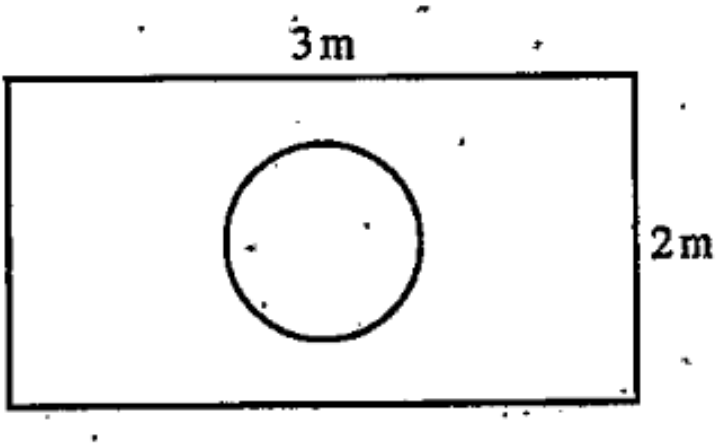
48. Suppose you drop a die at random on the rectangular region shown in Fig.15.6.What is the probability that it will Iand,inside the circle with diameter 1 m?



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49. 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 is defective. The shopkeeper draws one pen at random and gives it to her. What is the prpbability that (i) She will buy it?

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50. 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 is defective. The shopkeeper draws one pen at random and gives it to her. What is the prpbability that(ii) She will not buy it?

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51. 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.

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52. A die is throw twice. What is the probability that (i) 5 will come up either time?

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53. A die is throw twice. What is the probability that (ii) 5 will come up at least once?

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54. Which of the following arguments are correct and which are not correct? Give reasons for your answer (i) If two coins are tossed simultaneously there are three possible outcomes-two heads, two tails or one of each. Therefore,for each of these outcomes,the probability is 1/3.

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55. Which of the following arguments are correct and which are not correct? Give reasons for your answer(ii) If a die is thrown, there are two possible outcome- an odd number or an even number. Therefore, the probability of getting an odd number is 1/2.

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56. Two customers Shyam and Ekta are visiting a particular shop in the same week (Tuesday to Saturday). Each is equally llkely to visit the

shop on any day as on another day. What is the probability that both will visit the shop on (i) the same day?

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57. Two customers Shyam and Ekta are visiting a particular shop in the same week (Tuesday to Saturday). Each is equally llkely to visit the shop on any day as on another day. What is the probability that both will visit the shop on(ii) consecutive days?

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58. Two customers Shyam and Ekta are visiting a particular shop in the same week (Tuesday to Saturday). Each is equally llkely to visit the shop on any day as on another day. What is the probability that both will visit the shop on(iii) different days?

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

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60. A box contains 12 balls out of which x are black.If one ball is drawn at random from the box,what is the probability that it will be a black ball? If 6 more black balls are put the

box,the probability of drawing a black ball is now double of what it was before. find x.

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61. A jar contains 24 marbles, some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is 2 /3. Find the number of blue balls in the jar.

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62. A die is thrown once what is the probability of getting a prime number?

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63. A die is thrown once What is the probability of getting an odd number?

Watch Video Solution

64. A die is thrown once. Find the probability of getting (ii) a number lying between 2 and 6,

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65. A die is thrown once. What is the probability of getting a number greater than 4?

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66. A one rupee coin was tossed for once only. Find the probability of getting the head.

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67. A bag contains 5 red, 8 green and 7 white balls. One ball is drawn at random from the bag. What is the probability of getting a white ball or green ball?

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68. From a well shuffled pack of cards a card is drawn at random. Find the probability of a getting a black queen.

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69. If $\overline{E}$ denote the complement or negation of an event E, what is the value of $P(E) + P(\overline{E})$

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70. If P(E) =0.05, what is the probability of not 'E'?

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71. Two coins are tossed simultaneously. Find the probability of getting exactly one head.

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72. The probability of a sure event is _____

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73. The probability of an impossible event is ____

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74. For any event E, the value of complementary event E is ____

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75. For any event E the value of P(E). is ___then 1 and greater than 0

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76. Fill in the blanks :(iii)If $W_1, W_2, W_3, \ldots . W_n$are all the equally likely and simple events of any trial, then $P(W_1) + P(W_2) + \ldots . P(W_n)$=____

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77. In a threw of a die the probability of getting 4 is

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

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

C. $\frac{2}{3}$

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

Answer:

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78. A die is thrown once. The probability of getting a number less than 3 is

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

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

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

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

Answer:

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79. Two coins are tossed simultaneously. The probability of getting at most one head is—

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

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

C. $\frac{2}{3}$

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

Answer:

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80. The probability that a non-leap year has 53 sundays is

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

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

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

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

Answer:

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81. The probability that a leap year has 52 Mondays is

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

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

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

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

Answer:

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82. A month is selected at random in a year. The probability that it is March or October is

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

B. $\frac{1}{12}$

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

D. None of these

Answer:

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83. Two dice are thrown together. The probability of getting the same number on both dice is

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

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

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

D. $\frac{1}{12}$

Answer:

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84. A number x is chosen at random from the numbers -3,-2,-1,0,1,2,3 the probability that $|x|<2$ is

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

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

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

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

Answer:

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85. In a lottery, there are 6 prizes and 24 blanks then the probability of not getting a prize is

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

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

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

D. None of these

Answer:

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86. A number is selected from numbers 1 to 25.

The probability that it is prime is ____

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

B. $\frac{2}{3}$

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

D. $\frac{5}{6}$

Answer:

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87. A number is selected from first 50 natural numbers then the probability that it is a multiple of 3 or 5 is ___

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

B. $\frac{13}{25}$

C. $\frac{21}{50}$

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

Answer:

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88. Two friends were born in the year 2000. The probability that they have the same birthday is

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

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

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

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

Answer:

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89. The probability of an event can not be

A. 0.3

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

C. 0.33

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

Answer:

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90. If the probability of winning a game is 0.4, the probability of losing it is

A. 0.96

B. 0.6

C. $\frac{1}{0.4}$

D. None of these

Answer:

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91. Which of the following is a probability of an event

A. 1.45

B. -0.8

C. $\frac{2}{3}$

D. $\frac{3}{2}$

Answer:

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