



MATHS

BOOKS - CHETANA MATHS (MARATHI ENGLISH)

Probability

Example

1. How many possibilities are there in each of the following? Vanita knows the following

sites in Maharashtra. She is planning to visit one of them in her summer vacation. 'Ajintha, Mahabaleshwar, Lonar sarovar, Tadoba wild life sanctuary, Amboli, Raigad, Matheran, Anandavan'.



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2. How many possibilities are there in the following? Any day of a week is to be selected randomly.



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3. How many possibilities are there in the following? Select one card from the pack of 52 cards.



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4. How many possibilities are there in the following? One number from 10 to 20 is written on each card. Select one card randomly.



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5. Write sample space S and number of sample points $n(S)$: One coin and one die are thrown simultaneously.



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6. Write sample space S and number of sample points $n(S)$: Two digit number formed using digits 2, 3 and 5 without repeating the digits.



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7. Write sample space S and number of sample points $n(S)$: The arrow is rotated and it stops randomly on the disc which is divided equally into 6 colours. Find out on which colour it may stop.



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8. Write sample space S and number of sample points $n(S)$: In the month of March

2019, find the days on which the date is a multiple of 5 if 1st of March is Friday.



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9. Write sample space S : Form a 'Road safety committee' of two, from 2 boys (B_1, B_2) and 2 girls (G_1, G_2).



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10. Write sample space 'S' and number of sample points ' $n(S)$ '. Also write events A, B, C in the set form and write $n(A)$, $n(B)$, $n(C)$: One die is rolled, Event A: Even number on the upper face. Event B: Odd number on the upper face. Event C: Prime number on the upper face.



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11. Write sample space 'S' and number of sample point ' $n(S)$ ' for the following

experiment. Also write events A, B, C in the set form and write $n(A), n(B), n(C)$: Two dice are rolled simultaneously: Event A: The sum of the digits on upper faces is a multiple of 6. Event B: The sum of the digits on the upper face is minimum 10. Event C: The same digit on both the upper faces.



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12. Write sample space 'S' and number of sample point 'n(S)' for the following

experiment. Also write events A, B, C in the set form and write $n(A), n(B), n(C)$: Three coins are tossed simultaneously: Event A: To get at least two heads. Event B: To get no head. Event C: To get head on the second coin.



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13. Write sample space ' S ' and number of sample point ' $n(S)$ ' for the following experiment. Also write events A, B, C in the set form and write $n(A), n(B), n(C)$: Two digit

numbers are formed using digits 0,1,2,3,4,5 without repetition of the digits. Event A: The number formed is even. Event B: The number formed is divisible by 3. Event C: The number formed is greater than 50.



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14. Write sample space 'S' and number of sample point ' $n(S)$ ' for the following experiment. Also write events A,B,C in the set form and write $n(A)$, $n(B)$, $n(C)$: From three

men and two women, Environment Committee of two persons is to be formed. Event A: There must be atleast one woman member. Event B: One man, one woman committee to be formed. Event C: There should not be a woman member.



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15. Write sample space 'S' and number of sample point ' $n(S)$ ' for the following experiment. Also write events A,B,C in the set

form and write $n(A)$, $n(B)$, $n(C)$: One coin and one die are thrown simultaneously. Event A: To get head and an odd number. Event B: To get a head or tail and an even number. Event C: Number on the upper face is greater than 7 and tail on the coin.



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16. Basketball players John, Vasim, Akash were practicing the ball drop in the basket. The probabilities of success for John, Vasim and

Akash are $\frac{4}{5}$, 0.83 and 58% respectively. Who had the greatest probability of success?



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17. If two coins are tossed, find the probability of the following events: (i) Getting atleast one head (ii) Getting no head.



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18. If two dice are rolled simultaneously, find the probability of the following events. (i) The sum of the digits on the upper faces is at least 10. (ii) The sum of the digits on the upper face is 33. (iii) The digit on the first die is greater than the digit on second die.



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19. Six faces of a die are printed as A, B, C, D, E, A . If the die is rolled once, find

the probability of: (i) A appears on upper face.

(ii) D appears on upper face.



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20. The faces of a die bear numbers 0,1,2,3,4,5.

If the die is rolled twice, then find the probability that the product of digits on the upper face is zero.



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21. A card is drawn at random from a pack of well shuffled 52 playing cards. Find the probability that the card drawn is (i) Ace. (ii) Spade.



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22. There are 15 tickets in a box, each bearing one of the numbers from 1 to 15. One ticket is drawn at random from the box. Find the probability of event that the ticket drawn: (i)

shows an even number (ii) shows a number which is a multiple of 5.



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23. Joseph kept 26 cards in a cap, bearing one english alphabet on each card. One card is drawn at random. What is the probability that the card drawn is a vowel card?



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24. A box contains 30 tickets, bearing only one number from 1 to 30 on each. If one ticket is drawn at random, Find the probability of an event that the ticket drawn bears (i) an odd number. (ii) a complete square number.



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25. There are six cards in a box, each bearing a number from 0 to 5. Find the probability of each of the following events, that a card

drawn shows: (i) a natural number (ii) a number less than 1 (iii) a whole number (iv) a number greater than 5.



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26. Each card bears one letter from the word 'mathematics'. The cards are placed on the table upside down. Find the probability that a card drawn bears the letter 'm'.



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27. A two digit number is formed with digits 2,3,5,7,9 without repetition. What is the probability that the number formed is: (i) an odd number? (ii) a multiple of 5?



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28. In a game of chance, a spinning arrow comes to rest at one of the numbers 1,2,3,4,5,6,7,8. All these are equally likely outcomes. Find the probability that it will rest

at (i) 8 (ii) an odd number (iii) a number greater than 2 (iv) a number less than 9.



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29. A two digit number is formed from the digits 0,1,2,3,4. Repetition of the digits is allowed. Find the probability that the number so formed is a: (i) prime number (ii) multiple of 4 (iii) multiple of 11.



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30. In a hockey team there are 6 defenders, 4 offenders and 1 goalee. Out of these, one player is to be selected randomly as a captain. Find the probability of the selection that: (i) The goalee will be selected (ii) A defender will be selected.



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31. A balloon vendor has 2 red, 3 blue and 4 green balloons. He wants to choose one of them at random to give it to Pranali. What is

the probability of the event that Pranali gets:

(i) a red balloon (ii) a blue balloon (iii) a green

balloon.



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32. A box contains 5 red, 8 blue and 3 green pens. Rujuta wants to pick a pen at random.

What is the probability that the pen is blue?



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33. A bag contains 3 red ,3 white and 3 green balls. One ball is taken out of the bag at random. What is the probability that the ball drawn is (i) red (ii) not red (iii) either red or white.



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34. Out of 200 student from a school,135 like kabbaddi and the remaining students do not like the game.If one student is selected at

random from all the students, find the probability that the student selected doesn't like kabbaddi.



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35. Length and Breadth of a rectangular garden are 77m and 50 m. There is a circular lake in the garden having diameter 14m. Due to wind, a towel from a terrace on a nearby building fell into the garden. Then find the

probability of the event that it fell in the lake.



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Exercise

1. Which number cannot represent a probability? a) $\frac{2}{3}$ b) 1.5 c) 0.15 d) 0.7

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

B. 1.5

C. 0.15

D. 0.7

Answer:



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2. A die is rolled. What is the probability that the number appearing on upper face is less than 3? a) $\frac{1}{6}$ b) $\frac{1}{3}$ c) $\frac{1}{2}$ d) 0

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

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

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

D. 0

Answer:



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3. What is the probability of the event that a number chosen from 1 to 100 is a prime number? a) $\frac{1}{5}$ b) $\frac{1}{4}$ c) $\frac{2}{3}$ d) $\frac{2}{7}$

A. $\frac{1}{5}$

B. $\frac{6}{25}$

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

D. $\frac{13}{50}$

Answer:



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4. There are 40 cards in a bag. Each bears a number from 1 to 40. One card is drawn at random. What is the probability that the card

bears a number which is a multiple of 5? a) $\frac{1}{5}$

b) $\frac{3}{5}$ c) $\frac{4}{5}$ d) $\frac{1}{3}$

A. $\frac{1}{5}$

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

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

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

Answer:



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5. If $n(A) = 2$, $P(A) = \frac{1}{5}$, Then $n(S) = ?$ a)

10 b) $\frac{5}{2}$ c) $\frac{2}{5}$ d) $\frac{1}{3}$

A. 10

B. $\frac{5}{2}$

C. $\frac{2}{5}$

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

Answer:



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6. Which of the following cannot be the probability of an event? a) $\frac{3}{5}$ b) $\frac{7}{2}$ c) $\frac{3}{4}$ d) $\frac{4}{5}$

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

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

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

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

Answer:



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7. The value of probability always lies between.....a) 0 to 1 b) -1 to 1 c) 1 to ∞ d) $-\infty$ to 1

A. 0 to 1

B. $-1 \rightarrow 1$

C. $1 \rightarrow \infty$

D. $-\infty \rightarrow 1$

Answer:



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8. The probability of throwing a number smaller than 2 in a fair die is.....a) $\frac{1}{6}$ b) $\frac{2}{3}$ c) $\frac{2}{7}$
d) $\frac{6}{7}$

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

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

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

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

Answer:



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9. A card is drawn from a well shuffled pack of 52 cards. The probability that the card drawn is a black face card is....a) $\frac{3}{26}$ b) $\frac{2}{13}$ c) $\frac{7}{26}$ d) $\frac{1}{3}$

A. $\frac{2}{13}$

B. $\frac{3}{13}$

C. $\frac{3}{26}$

D. $\frac{1}{13}$

Answer:



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10. Three coins are tossed. Find the probability

that tail does not appear. a) $\frac{3}{8}$ b) $\frac{7}{8}$ c) $\frac{1}{4}$ d) $\frac{1}{8}$

A. $\frac{3}{8}$

B. $\frac{1}{8}$

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

D. $\frac{7}{8}$

Answer:



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11. Find the sample space 'S' and the sample points ' $n(S)$ ': A two digit number is to be formed from the digits 0,2,4,6 without repetition of digits.



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12. Find the sample space 'S' and the sample points ' $n(S)$ ': A ball is drawn from a bag containing 3 red, 3 green and 4 white balls.



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13. Find the sample space 'S' and the sample points 'n(S)': A day is chosen randomly for the meeting of Gram Sevaks in the month of February 2016.



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14. Find the sample space 'S' and the sample points 'n(S)': A committee of two is to be formed from 2 men and 3 women for Gram Swachata Abhiyan.



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15. Find the sample space 'S' and the sample points ' $n(S)$ ': A card is drawn from a box containing cards numbered from 1 to 25.



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16. A box contains cards numbered from 1 to 30. Write the sample space 'S' and number of sample points ' $n(S)$ ' and if a card is drawn at

random, write 'A' and ' $n(A)$ ' if the card drawn is divisible by 5.



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17. An urn contains 10 red and 8 white balls. Write sample space 'S' and ' $n(S)$ '. Write the events 'A' and 'B' using set form and mention ' $n(A)$ ' and ' $n(B)$ ' if 'A' is the event that ball is white and 'B', is the event that ball is neither white nor red.



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18. A card is picked up randomly from well shuffled pack of cards. Write the $n(S)$, $n(A)$, $n(B)$ and $n(C)$. Event A: A red face card. Event B: An ace of spade. Event C: Not a black king.



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19. A box contains 3 apples, 4 oranges and 5 bananas. One fruit is drawn at random from the box. Write S , $n(S)$ and sample points of each of the following events. Event A: Fruit is

orange or banana. Event B: Fruit is not an apple. Event C: Fruit is neither apple nor banana. Event D: Fruit is banana.



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20. Tickets numbered 1 to 30 are mixed up together and then a ticket is drawn at random. What is the probability that the ticket drawn will be a multiple of 7?



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21. Find the probability that a leap year selected at random will have 53 Sundays.



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22. A box contains 300 electric bulbs out of which 18 are defective. What is the probability that bulb chosen will not be defective?



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23. Three coins are tossed together. Find the probability of getting exactly two heads.



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24. A card is drawn at random from a well shuffled pack of 52 cards. Find the probability that the card is drawn is (i) neither ace nor king. (ii) black and a king. (iii) 10 of spades.



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25. If $n(A)=2, P(A)=1/5$, Then $n(S)=?$



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26. One coin and one die are thrown simultaneously. Write the sample space S and $n(S)$.



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27. Six faces of a die are printed with letters A, B, C, D, E, A . If the die is rolled once, find the probability that: (i) A appears on upper face (ii) D appears on upper face.



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36. Two customers Sumit and Amit are visiting a particular shop in the same week (Tuesday to Saturday). Each is equally likely to visit the shop on any day as on another day. What is the probability that both will visit the shop on the same day.



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37. Two customers Sumit and Amit are visiting a particular shop in the same week (Tuesday to Saturday). Each is equally likely to visit the shop on any day as on another day. What is the probability that both will visit the shop on: different days.



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38. Two customers Sumit and Amit are visiting a particular shop in the same week (Tuesday to

Saturday). Each is equally likely to visit the shop on any day as on another day. What is the probability that both will visit the shop on consecutive days.



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39. What is the probability that an ordinary year has 53 sundays?



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40. Find the probability that a leap year selected at random will have 53 Sundays.



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41. A missing helicopter is reported to have crashed somewhere in the rectangular area of length 9km and breadth 4.5km. The region has a rectangular lake of length 3km and width 2.5km. What is the probability that it crashed in the lake?





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42. Each coefficient in equation $ax^2 + bx + c = 0$ is obtained by throwing an ordinary die. Find the probability that the equation has real roots.



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



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44. A box contains 12 balls, out of which x are black. If 6 more black balls are put in the box, the probability of drawing a black ball will be doubled. Find x .



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45. A dart thrown lands in interior of circle of radius 1 feet. What is the probability that it

hits the bull's eye if radius of bull's eye is 0.1 feet?



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