



MATHS

BOOKS - ZEN MATHS (KANNADA ENGLISH)

PROBABILITY

Hints To Solve The Problems

1. Three fair coins are tossed. Find the probability of getting

a]. At least one head.

b]. At most one head.



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2. Two dice are thrown simultaneously. What is the probability of getting 8 as the sum of 2 numbers.

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3. One card is drawn at random from a well shuffled deck of 52 cards. What is the probability that the card drawn is either a red card or a king.

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4. A bag contains 6 red balls, 8 white balls, 5 green balls and 3 black balls. One ball is drawn at random from the

bag. Find the probability that the drawn ball is

i] not green

ii] neither white or black.



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5. Seventeen cards number 1,2,3, . . .17 are put in a box and mixed thoroughly. A card is removed at random from the box. Find the probability that the number on the card is prime.



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6. Cards each marked with one of the numbers 6,7,8 . . .15 are placed in the box and mixed thoroughly. One card is

drawn at the random from the box. What is the probability of getting a card with number less than 10 ?

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7. An integer is chosen between 0 and 100. what is the probability that it is divisible by 10?

A. $1/10$

B. $1/11$

C. $1/100$

D. $1/99$

Answer: $\frac{1}{11}$

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Illustrative Examples

1. Two coins are tossed simultaneously. Find probability of getting:

(a) Two heads

(b) No head

(c) One head and one Tail

(d) One tail

(e) At least one head

(f) At most one head



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2. Two dice are thrown together. What is probability of

(a) having one number being twice the other.

(b) having a product of 6 between the two numbers

(c) having a sum of 9

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3. A jar has 54 marbles coloured white, blue, and green.

The probability of selecting a blue one at random is $\frac{1}{3}$

and probability of selecting a green marble is $\frac{4}{9}$. How

many white marbles does the jar contain ?

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4. The probability of guessing the correct answer in a certain test is $\frac{P}{12}$. If probability of one guessing the correct answer to this question is $\frac{1}{3}$, find value of P.

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5. If a number x is chosen from 1, 2, and 3 and a number y is chosen from the sequence 1, 4, and 9, find the probability that xy is less than 9.

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6. What is the probability of having 53 Sundays in a leap year?



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7. One card is drawn from a pack of 52 cards after shuffling. Find the probability of drawing a (i) face and (ii) red face card (iii) jack of hearts (iv) diamond (v) red card.



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8. A die has 6 faces marked 0,1,1,1,6 and 6. Two such dice are thrown together and the total score is recorded. (i) How many different scores are possible ? What is probability of getting a total of 7?



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9. A bag has 24 balls of which x are red, $2x$ are white, and $3x$ are blue. A ball is selected at random. What is the probability that the balls drawn is

(i) not blue

(ii) white



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10. If 65% of a population group have black eyes, 25% have brown eyes, and the remaining have blue eyes, what is the probability that a person selected at random has

(i) blue eyes

(ii) brown or black eyes

(iii) blue or black eyes

(iv) neither blue nor brown eyes

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Textual Exercises 14 1

1. Complete the following statements :

Probability of an event E + Probability of the event 'not E

' = _____ .

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2. Complete the following statements :

The probability of an event that cannot happen is _____ .

Such an even is called _____ .



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3. Complete the following statements :

The probability of an event that is certain to happen is _____ . Such an event is called _____ .



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4. Complete the following statements :

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



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5. Complete the following statements :

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 .

A driver attempts to start a car. The car starts or does not start.



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7. 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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8. Which of the following cannot be the probability of an event?

(A) $\frac{2}{3}$

(B) -1.5

(C) 15%

(D) 0.7



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



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10. 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 an orange flavoured candy ?



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11. 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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12. 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 not red ?

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13. 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 red ?



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14. A piggy bank contains hundred 50p coins, fifty Rs. 1 coins, twenty Rs. 2 coins and ten Rs. 5 coins . If it is equally likely that one of the coins will fall out when that bank is turned upside down, what is the probability that the coin will be a 50 p coin ?



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15. Gopi buys a fish from a shop for his aquarium. The shopkeeper takes out one fish at random from a tank

containing 5 male fish and 8 female fish (see the given figure). What is the probability that the fish taken out is a male fish?



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16. 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 the given figure), and these are equally likely outcomes. What is the probability that it will point at

i] 8 ?

ii] an odd number?

iii] a number greater than 2?

iv] a number less than 9 ?



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17. A die is thrown once, Find the probability of getting

(i) a prime number

(ii) a number lying between 2 and 6

(iii) an odd number.

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18. One card is drawn from a well-shuffled deck of 52 cards.

Find the probability of getting

i] a king of red colour

ii] a face card

iii] a red face card

iv] the jack of hearts

v] a spade

vi] the queen of diamonds.



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19. 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.

If the queen is drawn and put aside, what is the probability that the second card picked up is (a) an ace?
(b) a queen ?



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



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22. A box contains 90 dices which are numbered from 1 to 90. If one dice is drawn at random from the box, find the probability that it bears

i) two digit number

ii) a perfect square number.



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23. A child has a die whose six faces shows the letters as given below:



The die is thrown once. What is the probability of getting

i] A?

ii] D?



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24. Suppose you drop a die at random one the rectangular region shown in the given figure. What is the probability that is will land inside the circle with diameter 1m?



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25. A lot consists of 144 ball pens of which 23 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 probability that

i] She will buy it?

ii] She will not buy it ?



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26. Two dice, one blue and one grey, are thrown at the same time.

i] Write down all the possible outcomes and complete the following table:

Event: 'Sum on 2 dice'	2	3	4	5	6	7	8	9	10	11	12
Probability	$\frac{1}{36}$						$\frac{5}{36}$				$\frac{1}{36}$

ii] A student argues that 'there are 11 possible outcomes

2,3,4,5,6,7,8,9,10,11 and 12. There, each of them has a probability $\frac{1}{11}$. do you agree with this argument ?

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27. A game consists of tossing a one rupee coin 3 times and noting its outcome each time. Henif wins if all the tosses give the same result i.e., three heads or three tails, and loses otherwise. Calculate the probability that Henif will lose the game.

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28. A die is thrown twice. What is the probability that
i] 5 will come up either time?

ii] 5 will come up at least once ?



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29. Which of the following arguments are correct and which are not correct? Give reasons for your answer.

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

$$\frac{1}{3}$$



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Textual Exercises 14 2

1. Two customers Shyam and Ekta 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

i] the same day?

ii] consecutive days?

iii] different days?



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2. A die is numbered in such a way that its faces show the number 1,2,2,3,3,6. It is thrown two times and the total score in two throws is noted. Complete the following

table which gives a few values of the total score on the two throws:

		Number in first throw					
		1	2	2	3	3	6
Number in second throw	1	2	3	3	4	4	7
	2	3	4	4	5	5	8
	2					5	
	3						
	3			5			9
	6	7	8	8	9	9	12

What is the probability that the total score is

i] even?

ii] 6?

iii] at least 6?



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3. A bag contains 5 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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4. 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 in the box, the probability of drawing a black ball is now double of what it was before.

find x .

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5. 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 $\frac{2}{3}$. Find the number of blue marbles in the jar.



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Zen Additional Questions Multiple Choice Questions

1. Let A and B be events on the same sample space with $P(A)=0.6$ and $P(B)=0.7$. Can these two events be disjoint?

A. Yes

B. No

C. cannot give a confirmed answer

D. None of the above

Answer: B

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2. Which options cannot be the probability of any event ?

Given: (i)-.001 (ii) 0.5 (iii) 1.001

A. only *i*

B. *i* and iii

C. only iii

D. *i* and ii

Answer: B

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3. An event is unlikely to occur. The probability of that event is closer to

A. $\frac{5}{100}$

B. 0.75

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

D. 1

Answer: A

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4. A probability experiment has 4 possible outcomes $e_1, e_2, e_3,$ and e_4 . The outcome e_1 is four times as likely as each of the other 3 remaining outcomes. Find probability of e_1 ?

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

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

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

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

Answer: B



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5. More than half the number of balls in a bag is red. Then the probability that a ball drawn at random is not a red ball ?

A. $P(A') \geq 0$

B. $0 \leq P(A) \leq 0.5$

C. $0 \leq P(A') \leq 0.5$

D. $0.5 \leq P(A) \leq 1$

Answer: D



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6. The probability expressed as a percentage of a particular occurrence can never be

A. less than 100

B. less than 0

C. greater than 1

D. anything but a whole number

Answer: B



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7. Rani has 2 kids and one of them is a girl. What is probability that the other child is also a girl ?

A. 0.5

B. 0.25

C. 0.333

D. 0.75

Answer: C



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8. A die is thrown once. Find the probability of getting a number lying between 2 and 6 .

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

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

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

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

Answer: C



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9. A pair of standard fair dice is rolled. What are the odd in favour of getting a sum of seven ?

A. 1 : 6

B. 6 : 1

C. 1 : 3

D. 3 : 1

Answer: A



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10. Blood groups of 200 people are as follows: A-50 B-65 O-70 AB-15. if a person is selected at random, what is the probability that he has 'O' blood type ?

A. 0.25

B. 0.35

C. 0.7

D. 0.5

Answer: B



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11. Two dice are rolled. Find the probability that the sum is equal to 5.

A. $\frac{5}{36}$

B. $\frac{1}{9}$

C. $\frac{1}{18}$

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

Answer: B



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12. Two dice are rolled. Find the probability that their sum is equal to one.

A. 1

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

C. $\frac{1}{36}$

D. 0

Answer: D



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13. A fair dice is rolled twice. What is the probability of getting 2 on first dice and not getting 4 one the second

dice ?

A. $\frac{1}{36}$

B. $\frac{1}{18}$

C. $\frac{5}{36}$

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

Answer: C



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14. A tetrahedral die is rolled twice. What is the probability that the number on the first roll is strictly higher than number on the second roll?

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

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

C. $\frac{7}{16}$

D. $\frac{9}{16}$

Answer: B



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15. A die is rolled and a coin is tossed. Find the probability that the die shows an odd number and the coin shows a head.

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

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

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

D. $\frac{5}{12}$

Answer: B



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16. What is the probability of getting a white marble from a jar which has 3 red, 7 green, and 10 white marbles ?

A. 0.5

B. 0.15

C. 0.35

D. none of the above

Answer: A

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17. In a box there are 8 red balls, 7 blue, and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green ?

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

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

C. $\frac{8}{2}$

D. $\frac{9}{21}$

Answer: A

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18. Three unbiased coins are tossed. What is the probability of getting atmost 2 heads ?

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

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

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

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

Answer: D



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19. Find the probability of drawing a red card from a pack of well-shuffled 52 cards.

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

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

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

D. None of the above

Answer: B



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20. What is the probability of drawing a face card from a pack of 52 ?

A. $\frac{4}{13}$

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

C. $\frac{5}{26}$

D. None of the above

Answer: B



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21. What is the probability of not getting a spade when you draw you card from a standard deck?

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

B. $\frac{4}{52}$

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

D. $\frac{13}{52}$

Answer: C



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22. Raju picked a king from a pack of cards. Ramu now shuffled the remaining cards and picked a card. What is probability of getting a king ?

A. $\frac{4}{52}$

B. $\frac{4}{51}$

C. $\frac{1}{17}$

D. $\frac{3}{52}$

Answer: C



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23. A school has five houses A,B,C,D and E. A class has 23 students, 4 from house A, 8 from house B, 5 from house student is selected at random to be a class monitor. The probability that the selected student is not from A,B and C is

A. $\frac{4}{23}$

B. $\frac{6}{23}$

C. $\frac{8}{23}$

D. $\frac{17}{23}$

Answer: B

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24. If $P(A) = 0.05$ the $P(\bar{A})$ is

A. 0.59

B. 0.95

C. 1

D. 1.05

Answer: B

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25. Faces of cubical die numbered from 1 to 6 is rolled once. The probability of getting an odd number on the top face is

A. $\frac{3}{6}$

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

C. $\frac{2}{6}$

D. $\frac{4}{6}$

Answer: A



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Zen Additional Questions Very Short Answer Vsa Questions

1. The probability that it will rain tomorrow is 0.85. what is the probability that it will not rain tomorrow?



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2. If the probability of winning a game is 0.07, what is the probability of losing it?



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3. A die is thrown once. What is the probability of getting a number less than 3 ?



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4. A die is thrown once. What is the probability of getting a prime number ?



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5. A coin is tossed twice. Find the probability of getting head both the times.



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6. A box has 25 red and 50 black balls. Find the probability of picking (a) a red ball (b) a black ball.



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7. A box has 3 blue, 2 white, and 4 red marbles. If a marble is drawn out at random from the box, what is the probability that it is not a white marble ?



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8. What is the probability of drawing a triangle given 3 collinear points ?



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9. Find the probability that a number selected at random from 3,4,5, . . .,25 is a prime number.



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10. A number is elected at random from the first 50 natural numbers. Find the probability that it is a multiple of three and four.



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11. Ten cards are numbered as multiples of 8 starting from 8. find the probability of drawing a number (a) which is a multiple of 4 (b) which is divisible by 5 (c) which has 3 in its units place (d) which is a perfect square (e) divisible by 3.



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12. Two fair dice are rolled. What is the probability of getting (a) a doublet (b) 6 on both the die (c) both die with odd numbers (d) 7 on either die (e) sum of 3 for numbers on the die.



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13. Two different dice are tossed together. Find the probability that (i) number on each dice is even (ii) sum of numbers appearing on the two dice is 5.



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14. A card is picked from a pack of well-shuffled cards. Find the probability that the drawn card is (a) a king (b) a face card (c) a number less than 5 (d) a black number greater than 3 but lesser than 6 (e) a diamond jack (f) a red Queen.



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15. A card is drawn at random from a well-shuffled pack of 52 cards. Find the probability that the card

i] is neither a queen nor a jack.

ii] is neither a red nor a queen.



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1. A letter is selected at random from the English alphabets. What is the probability that it is a vowel ?

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2. Find the probability of getting 53 Fridays in a leap year.

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3. Ten rotten eggs got mixed in a bag of 110 good ones. Find the probability of picking (a) a good egg (b) a rotten egg.

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4. What is the probability that two friends their birthdays

i] on the same day?

ii] on different days (ignoring the leap year)

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5. 14 defective bulbs are accidentally mixed with 98 good ones. It is not possible to just look at the bulb and tell whether it is defective or not. One bulb is taken out at random from this lot. Determine the probability that the bulb taken out is a good one.

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6. It is known that a box of 200 electric bulbs contains 16 defective pieces. One bulb is taken out at random. What is the probability that it is (i) defective (ii) not defective ?



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7. The probability that a leap year selected at random will contain 53 Sundays or 53 Mondays is :



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8. X and Y play a game of tossing all the coins in their pockets. X has 2 fair coins and Y has 3 fair coins. It is the

decided that whoever throws all heads, stands as the winner. Compare their chances of winning the game.

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9. Cards numbered 5,6,7, . . . ,74 are placed in a bag and mixed thoroughly. One card is drawn at random. Find the probability that the number on the card is a perfect square.

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10. A bag has cards numbered 2 to 90. a card is drawn at random from the bag. Find the probability that it bears

(i) a two-digit number (ii) a number which is a perfect square.

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11. Rahul and Ram hold a pair of die in their hands. Rahul has a pair of an 8-sided dice and Ram has a pair of tetrahedral dice in hand. What is the probability of each of them throwing a pair of numbers whose sum is 8 ?

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12. What is the probability of a disc thrown on a chess-board, coming to rest on

i] a white square?

ii a black square on the border ?

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13. What is the probability of getting a triplet when we throw 3 dice simultaneously ?

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14. A pack of 52 cards is divided into two sets, one with Reds and the other with blacks. The face cards are removed from both the sets. One card is picked from each set. What is probability that the numbers on the pair of cards give a product of 4 ?



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15. All kings, queens, and aces are removed from a pack of 52 cards. The remaining cards are well-shuffled and a card is drawn from it. Find the probability of:

i] getting a black face card

ii] getting a red card



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16. A cubical die numbered from 1 to 6 are rolled twice . Find the probability of getting the sum of numbers on its faces is 10 .



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Zen Additional Questions Short Answer Sa Type 2 Questions

1. A letter is selected at random from the letters of the word "PROBABILITY". Find the probability that it is

i] a B

ii] a consonant

iii] a vowel

iv] a Y



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2. A child is playing with a cube which has the letters as shown on its 6 faces:

TATBAA

What is the probability of

i] Getting a 'T' ?

ii] Getting an 'A' ?

iii] Getting consonant ?

iv] Not getting a B ?



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3. Cards numbered 1,3,5, . . .,35 are kept in a bag. If a card is drawn at random from the bag, find the probability that the number on the card is

i] a prime number < 15

ii] a number divisible by 3 and 5.



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4. Two dice are rolled together. Find the probability of getting such numbers on the two dice whose products are perfect squares.



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5. A box has 100 red cards, 200 yellow cards, and 50 blue cards. If a card is drawn at random from the box, find the probability that it is (i) a blue card (ii) not a yellow card (iii) neither a yellow nor a blue card.



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6. Two different dice are thrown together. Find the probability that the number obtained have

i] even sum

ii] even product



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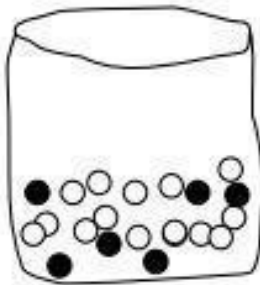
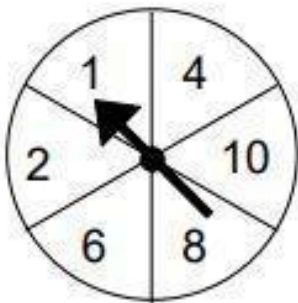
7. A bag has 20 balls of which x are white. One ball is drawn at random from the bag and the probability of it being white is y . After replacing this ball, 10 more white balls are added to the bag and the probability of now drawing a white ball is $2y$. Find x .



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8. Read the following passage and answer the questions given at the end.

A game booth at Diwali fair involves using a spinner first. Then if the spinner stops on an even number the player is allowed to pick a marble from a box. The spinner and the marbles in the box are represented in figure. prizes are given, when black marble is picked. shweta plays the game once.



i] What is the probability that she will be allowed to pick a marble from the box?

ii} Suppose she is allowed to pick a marble from the box, what is the probability of getting a prize, when it is given that the box contains 20 balls out of which 6 are Black?

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9. Two coins are flipped at a gambling stall. A "head" entitles the player to receive Rs 100 while a "tail" imposes a fine of Rs 25. what is the maximum amount that can be won or lost for a single flip of the two coins and what is its probability?

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10. A bag contains 3 red balls, 5 white balls and 8 blue balls. One ball is taken out of the bag at random. Find the probability that the ball taken out is

(a) a red ball,

(b) not a white ball.



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Zen Additional Questions Long Answer La Type Questions

1. A group consists of 12 persons of whom 3 are extremely patient, 6 others are extremely honest, and the last 3 are extremely kind. A person from the group is selected at random. Assuming that each person is equally likely to be

selected, find the probability of selecting a person who is

(i) extremely patient (ii) extremely kind or honest.



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2. A bag contains 5 red balls, 6 white balls, 7 green balls, 8 black balls. One ball is drawn at random from the bag.

Find the probability that the ball drawn is

i] white

ii] black or red

iii] not white

iv] neither white nor black.



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3. A bag contains 6 red balls and some blue balls. If the probability of drawing a blue ball from the bag is double that of a red ball, find number of blue balls in the bag.

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4. A bag has cards numbered from 1 to 49. if a card is drawn at random from the bag after mixing them thoroughly, find the probability that the number on the card is (i) odd (ii) a multiple of 5 (iii) a perfect square (iv) an even prime number.

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5. Cards numbered from 11 to 60 are kept in a box. If a card is drawn at random from the box, find probability that the number on the card is (i) odd (ii) a perfect square (iii) divisible by 5 (iv) prime number < 20 .



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6. A box contains 19 balls bearing numbers 1,2,3, . . .,19. a ball is drawn at random from the box. Find the probability that the number on the ball is

i] a prime number

ii] divisible by 3 or 5.

iii] neither divisible by 5 nor by 10

iv] an even number.



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7. In a bag there are 44 identical cards with the figure of a circle or a square on them. There are 24 circles of which 9 are blue and the rest are green and 20 squares of which 11 are blue and the rest are green. One card is drawn from the bag at random. find the probability that it has the figure of a (i) square (ii) green colour (iii) blue circle (iv) green square.



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8. Two dice are tossed simultaneously. What is the probability that (i) 5 does not come up (ii) 5 comes up at least once (iii) 5 comes up at both dice.



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9. All black face cards are removed from a pack of 52 playing cards. The remaining cards are well-shuffled and then a card is drawn at random. Find the probability of getting a (i) face card (ii) red (iii) black card (iv) king.



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10. A game of chance consists of a spinning an arrow on a circular board divided into 8 equal parts, which comes to rest pointing at one of the numbers 1,2,3, . . . 8 which are equally likely outcomes. What is the probability that the arrow will point.



- i] an odd number
- ii] a number greater than 3
- iii] a number less than 9
- iv] number 9.



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11. A number x is selected at random from the numbers 1,2,3, and 4. another number y is selected at random from numbers 1,4,9, and 16. find the probability that product of x and y is less than 16.



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Zen Additional Questions Hots Higher Order Thinking Skills Questions

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

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2. In a family of 3 children, find the probability of having at least one day.

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3. Two numbers 'a' and 'b' are selected successively without replacement in that order from the integers 1 to

10. find the probability that $\frac{a}{b}$ is an integer.



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4. From the letters of the word "Native", a letter is selected. Find the probability that the letter is a vowel.



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5. A month is selected at random in a year. Find the probability that it is a month beginning with the letter 'J'.



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6. Mani sold 1000 lottery tickets of which 20 tickets had prizes on them. What is probability of winning a prize, if you purchased one ticket from Mani?

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7. A number is chosen at random from $-3, -2, -1, 0, 1, 2$ and 3 . what is the probability that the square of this number is less than or equal to 1 ?

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8. A dart is thrown and lands in the interior of the circle. What is the probability that the dart lands in the shaded

region?



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9. Three concentric circles have radii of 2, 6, and 9 cm respectively. What is the probability that the dart aimed at the target lands in the shaded region ?



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10. A game consists of spinning an arrow which comes to rest pointing at one of the number 1, 2, 3, 4, . . . , 16 as shown below.



If outcomes are equally likely, find the probability that the pointing points to:

i] 8

ii] an even number.

iii] a prime number

iv] a number > 8

v] a number ≤ 9

vi] a number between 3 and 11.



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11. In a bundle of 50 shirts, 44 are good, 4 have minor defects, and 2 have major defects. What is the probability that

(a) a trader buys only good shirts?

(b) a trader rejects only a shirt with major defects?



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12. A circle with diameter 20 cm is drawn somewhere on a rectangular piece of paper with length 40 cm and width 30 cm. This paper is kept horizontal on a table top and a die, very small in size, is dropped on the rectangular paper. Without seeing it. If the die lands on the paper only, find the probability that it lands:

i] inside the circle

ii] outside the circle.



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13. A box has some black balls and 30 white balls. If the probability of drawing of a black ball is $\frac{2}{5}$ th the probability of drawing of a white ball, find the number of black balls in the box.



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14. Offices in Delhi are open for 5 days in a week (Monday to Friday). Two employees of an office remain absent for one day in the same week. Find the probability that they remain absent on:

i] the same day

ii] consecutive days

iii] different days.





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15. The probability of getting a bad egg in a lot of 400 is 0.035. find the number of bad eggs in the lot.



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16. In a gam the entry fee is Rs5. the game consists of tossing a coin 3 times. If one or two heads show, Swetha gets her entry fee back. If she throws 3 heads, she gets double the entry fees, otherwise she will lose. For tossing a coin 3 times, find the probability that she:

- i] loses the entry fee
- ii] gets double the entry fee
- iii] just gets her entry fee.



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17. A bag has white, black, and red balls. A ball is drawn at random from the bag. The probability of getting a white ball is $\frac{3}{10}$ and that of a black ball is $\frac{2}{5}$. Find the probability of getting a red ball. If the bag has 20 black balls, find the total number of balls in the bag.



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18. What is the probability that a number selected at random from 1,2,2,3,3,3,4,4,4,4 is their average ?



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19. One number is selected from the first 50 natural numbers. What is the probability that it is a root of

$$x + \frac{256}{x} > 40 ?$$



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20. A box contains 5 apples, 6 oranges, and x bananas. If the probability of selecting an apple from the box is $\frac{1}{3}$, find number of bananas in the box.



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21. If a letter is selected at random from the letters of the word LOGARITHMS, what is the probability that it is a

consonant?



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22. An urn contains 6 blue and 'a' green balls. If the probability of drawing a green ball is double that of drawing a blue ball, find 'a'.



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23. A bag has 8 balls numbered 1 to 8. If 2 balls are picked at random, find the probability of the two balls picked being 2 and 3.



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24. A patient was in need of blood of group 'O'. The hospital showed its Blood Donor number list as A-12 B-23 O-35 AB-30. what is the probability of getting blood for this patient?



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