MATHS

BOOKS - UNIQUE MATHS (HINGLISH)

PROBABILITY

Parctice Set

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

i. Vanita knows the following sites in

Maharashtra. She is planning to visit one of them in her summer vacation.

Ajintha, Mahabaleshwar, Lonar Sarova, Tadoba wild life sanctuary, Amboli, Raiged, Matheran, Anandavan.

ii. Any day of week is to be selected randomly.

iii. Select one card from the pack of 52 cards.

iv. One number from 10 to 20 is writter on each card . Select one card randomly.


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2. Any day of week is to be selected randomly.

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3. Select one card form the pack of 52 cards.

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Parctice Set 5 2

1. For each of the following experiments write sample space 'S' and number of sample points n(S)

One coin and one die are throw simultaneously .

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2. For each of the following experiments write sample space 'S' and number of sample points n(S)

Two digit numbers are formed using digits 2,3 and 5 without repacting a digits ?

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3. Form a 'Road sefety committee' of two, from 2 boys (B_1, B_2) and 2 girls (G_1, G_2) . Complete the following activity to write the sample space .

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Parctice Set 5 3

1. Write the sample space S, and number of sample points n(S) for each of the following experiments. Also, write events A,B,C in the set form and write n(A), n(B),n(C) :

(1) 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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2. Write sample space 'S' and number of smaple points n(S) for each of the following expreiments . Also wirte 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 faces is minimum 10.

Event B : The sum of the digit on the upper faces is minimun 10 .

Event C . The same digit on both the upper faces.

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3. Write sample space 'S' and number of smaple points n(S) for each of the following expreiments . Also wirte events A,B,C in the set form and write n(A), n(B) n(C).

Three coin are tossed simultaneously.

Condition for event A : To get least two heads.

Condition for event B : To et no head .

Condition for event C: To get head on the second coin.

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4. Write sample space 'S' and number of smaple points n(S) for each of the following expreiments . Also wirte 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.

Condition for event A: The number formed is

even .

Condition for event B : The number formed is divisible by 3.

Condition for event C : The number formed is greater than 50 .

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5. From three men and two women, environment committee of two person is to be formed.

Conditions for event A : There must be at least

one woman member.

Condition for event B : One man, One woman committee to be formed.

Condition for event C: There should not be a woman member.

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Parctice Set 5 4

1. If two coins are tossed, find the probability of the following events.

i. Getting at least one head.

ii. Getting no head.

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2. If two coins are tossed, find the probability of the following events.

i. Getting at least one head.

ii. Getting no head.

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3. If two diec are rolled simultneously, find the probability of the following events.

The sum of the digits on the upper faces is at least 10 .

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4. If two diec are rolled simultneously, find the probability of the following events.

The sum fo the digits on the upper faces is 33

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5. Solve the following questions.

If two dice are rolled simultaneously, find the probability of the following events .

The digit on the first die is greater than the digit on second die

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6. There are 15 tickets in a box , each bearing one of the numbers from 1 to 15 . One ticket is draw at random form the box . Find the

probaility of event that the ticket draw - shows an even number

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7. There are 15 tickets in a box , each bearing one of the numbers from 1 to 15 . One ticket is draw at random form the box . Find the probaility of event that the ticket draw - shows a number which is a mulitple of 5.

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8. A two-digit number is formed with digits 2,3,5,7,9 without repetition. What is the probability that the number formed is

(1) an odd number?

(2) a multiple of 5 ?

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9. A two digit numbe is formed with digits 2,3,5,7,9 without repetition . What is the probability that the number formed is .

an odd number ?

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10. A card is drawn at random from a pack of well-shuffled 52 playing cards. Find the probability that the card drawn is (1) an ace (2) a spade.

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Hots Solved

1. Three hores A , B and C are in a race A, is twice as like to win as B and B is twice as like to win as C, what are their probabilities of wininng ?

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2. Savita and Hamida are friends. What is the probability that both will have (i) different birthdays? (ii) the same birthday? (ignoring a leap year).

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3. What is the probability that a leap year has 53 Sundays ?

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Unique Practice Session Mcqs

1. When 3 coins are tossed simultaneously , the number of elements in the same space is .

A. 2

B. 4

C. 6

D. 8

Answer: D

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2. Number of face cards in a pack of cards is .....

A. 106

B. 12

C. 14

D. 16

Answer: B

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3. 3 coins are tossed simultaneously, A is the event of getting no head, then P(A) is .....

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

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

C. $\frac{5}{8}$

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

Answer: A

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4. Two dice are thrown simultaneosly. E is the event that sum of numbers on the uppermost face is at least 10 , then n(E) .....

A. 2

B. 4

C. 6

D. 8

Answer: C

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5. 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

A. 1

B. 3

C. 6

D. 9

Answer: B

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6. A coins is tossed and a die is thrown simulatenously . A is an event of getting a head and an event number the n(A) is .....

A. 2

B. 3

C. 4

D. 6

Answer: B

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7. Two coins are tossed , then the probability that at least one head turns up is .....

A. 0

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

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

D. 1

Answer: C

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8. A die is thrown , the probability of getting a perfect square is .....

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

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

C. 1

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

Answer: B

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9. A die is thrown , the probability of getting a perfect square is .....

A. 3

B. 4

C. 5

D. 6

Answer: B

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10. 2 digit number are formed form the digits 0,1,2,3,4 where digit are not repeated. B is the event that the number formed d is greater than 40, then n (B) is .....

A. 5

B. 4

C. 3

D. 2

Answer: C

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11. A card is the drawn from a pack of cards .

The probabiltiy of getting a black card is .....

A. $\frac{1}{52}$

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

C. $\frac{26}{52}$

D. $\frac{39}{52}$

Answer: C

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12. A card is drawn at random form a well - shuffled pack of 52 cards . The probability that the cards drawn is a diamond is .....

A. $\frac{1}{52}$

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

C. $\frac{26}{52}$

D. $\frac{39}{52}$

Answer: B

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13. 2 coin are tossedd. A is the event of getting at the most one head then A = ?

A. {HH,HT,TH,TT}

B. [HH,HT,TH]

C. {HT,TH,TT}

D. {HT,TH}

Answer: C

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14. An unbiased die is thrown. A is the event that a prime number comes up , then A = ?

A. {1,2,3,5}

B. {2,3,5}

C. {1,3,5}

D. {1,2,3}

Answer: B

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15. Two dice are rolled simultaneously . A is an event that porduct of numbers on the uppermost face is 12 , then P(A) = ?

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

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

C. $\frac{2}{9}$

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

Answer: A

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16. A bag contains 3 red, balls, 4 bule balls and 5 green balls .What is the probability that a ball picked up at random is not a blue ball ?

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

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

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

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

Answer: C

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17. A die is thrown. If A is the event of getting a score on the upper surface which is divisible by 5 , then A is .....

A. a certain events

B. an impossible events

C. an elementary events

D. mutually exclusive event

Answer: C

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18. Which of the following numbers cannot be the probability of an events ?

A. 1

B. 0

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

D. $\frac{20}{17}$

Answer: D

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19. When an unabiased dice is thrown n(S) is .....

A. 2

B. 4

C. 6

D. 8

Answer: C

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20. A subset of a sample space is called .....

A. an event

B. out come join

C. probability

D. random experiment

Answer: A

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21. Proability of a uncertain event is .....

A. -1

B. 0

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

D. 1

Answer: B

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22. Probability of a impossible event is .....

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

B. 1

C. 0

D. -1

Answer: C

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23. If A is an event of a smaples space S, then

P(A) = ...

A. $\frac{n(A)}{n(S)}$

B. $\frac{n(A)}{n(S)}$

C. $\frac{n(S)}{n(A)}$

D. $\frac{1}{n(A)}$

Answer: A

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24. If the sample space $S = \{1, 2, 3, 4, 5, 6\}$ and the event $A = \{1, 3, 5\}$ then A ' = ...

A. {1,2,3}

B. {2,4,6}

C. {1,4}

D. {2,4}

Answer: B

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Unique Practice Session 1 Marks Questions

1. A coin is tossed once. Write its sample space.

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2. A card is drawn from the pack of 25 cards labelled with numbers 1 to 25. Write the sample space for this random experiment.

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3. Two coins are tossed simultaneously. Write the sample space S and the number of sample points n(S).

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4. Write the sample space for selecting a day randomly of the week.

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5. Two coins are tossed simultaneously. Write the sample space S and the number of sample points n(S).

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6. If $S = \{2, 4, 6, 8, 10, 12\}$ and $A = \{4, 8, 12\}$ find P(A) .

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7. If two coin are tossed once . Find a sample space ?

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8. Each card bears one letter from the word 'PROBABILITY'write the sample space.

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9. If a coin is tossed three times (or three coins are tossed together), then describe the sample space for this experiment.

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Unique Practice Session 2 Marks Questions

1. A die is thrown. If A is an event of getting an odd number then write the sample space and event A in set notation.

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2. A die is thrown, then find the probability of the following events, A is an Event: getting an odd number on the upper surface of the die. B is an Event getting a perfect square on the upper surface of the die.

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3. A box contains 20 cards marked with numbers 1 to 20. One card is drawn at random.

Eevent A is the number on the card which is multiple of 5. Write S , n(S) A and n(A) .

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4. A card is drawn from a well shuffled pack of 52 playing cards. Find the probability of each event. The card drawn is (i) a red card (ii) a face card.

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5. In the following experiment, write the sample space S, number of sample points n(S), write the event P in the set form and find n(P). From two-digit numbers using the digits $0, 1, 2, 3, 4$ without repeating the digits. P is the event that the number so formed is even.

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6. A beg contains 50 cards . Each card bears only one number from 1 to 50 . One card is

drawn at random from the beg . Write the sample space. Also write the events A, B and find the number of sample points in them.

Condition for event B : the number on the card is a complete square.

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7. Find the probability of the following when one coins is tossed.

(i) getting head

(ii) getting tail.

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8. If one die is rolled then find the probability of each of the following events.

(i) Number on the upper face is prime.

(ii) Number on the upper face is even.

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9. A box contains 5 strawberry chocolates, 6 coffee chocolates and 2 pepperint chocolates. Find the probability of each of the following

events , if one of the chocolates is picked form the box at random . (i) it is a coffe chocolate . (ii) it is a peppermint chocolate .

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Unique Practice Session 3 Marks Questions

1. Two-digit numbers are formed for the digits 0, 1, 2, 3, 4 where digits are not repeated. Find the probability of event that.

(a) The number formed is an even number .

(b) The number formed is a Prime number .

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2. There are 30 tickets numbered from 1 to 30 in a box and a ticket is drawn at random. If A is the event that the number on the ticket is a perfect square, then write the sample space S, n(S), the event A and n(A).

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3. There are three boys and two girls. A committee of two is to be formed. Find the probability of the following events.

(a) Eevnt A : The committee contain at least one girl.

(b) Event B : The committee contains one boy and one girl.

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4. A coin is tossed three times them find the probability of the following events .

(a) A is an even to getting a head on middle coin .

(b) B is an event of getting exactly one tail.

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5. A die is thrown, find the probability of the event of getting a number less than 3.

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Unique Practice Session 4 Marks Questions

1. There are 3 boys and 2 girsl. A Plant More Trees committee of two is to be formed. Find the probability that the committee contains (i) at the most one girl (ii) at least one boy (iii) only boys.

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2. Two dice are thrown , find the probability of getting .

(a) The sum of the number on their upper faces is at least 10 .

(b) The sum of the numbers on their upper faces is divisible by 5.

(c) The number on upper face of the first die is gireater than the number on upper face of the second die .

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3. Two digit numbers are formed using the digits 0,1,2,3,4,5 where digits are not repeated. P is the event that the number so formed is even.

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4. A card is drawn at random form a well - shuffled pack of 52 plying cards. Find the probability of the event that the cards drawn is .

(a) a king .

(b) a face card.

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5. Two dice are thrown. Find the probability of getting:

(a) The sum of the numbers on their upper faces is at least 9.

(b) The sum of the numbers on their upper faces is 15.

(c) The number of the upper face of the second die is greater than the number on the upper face of the first die.

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6. Find the probability of 4 turning up at east once in two tosses of a fair die.

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7. In a certain race there are three boys A, B, C. The winning probability of A is twice than B and the winning probability of B is twice than C. If $P(A) + P(B) + P(C) = 1$, then find the probability of each boy.

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8. Two coins are tossed simultaneously Write the sample space (S) and number of sample points n(S). Also write the following events in the set form and write the following events in the set form and write the number of sample points in each events.

(i) Condition for event A , To ge at least one tail .

(ii) Condition for event B : To get only one head.

(iii) Condition for event C : to get at most one

tail .

(iv) Condition for event D , to get no head.

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9. Two diece are rolled , write the sample space 'S' and number of sample points n(S). Also write events and number of sample points in the events according to the given conditio.

(i) Sum of the digits on upper face is a prime number .

(ii) Sum of the digits on the upper face is

mulitiple of 5.

(iii) Sum of the digits on the upper face is 25.

(iv) Digits on the upper face on the first die is less than the digits on the second die .

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10. A sanitation committee of 2 members is to be formed form 3 boys and 2 girls . Write sample space 'S' and number of sample points n(s). Also write the following events in set form and number of sample points in the

event

Condition for event A : at least one girl must be a member of the committee.

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Hots

1. In a cricket match, a batsman hits a boundary 6 times out of 30 balls he plays. Find the probability that on a ball played: he hits boundary (ii) he does not hit a boundary.

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2. A letter is chosen at random from the letters of the word ASSASSINATION. Find the probability that the chosen is a(i) vowel (ii) consonant.

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Assignment V

1. If A is an event of a smaples space S, then

P(A) = ...

A. $\frac{n(A)}{n(S)}$

B. $\frac{1}{n(S)}$

C. $\frac{n(S)}{n(A)}$

D. $\frac{1}{n(A)}$

Answer:

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2. Two dice are rolled simultaneously. A is an event that the sum of the numbers is divisible by 9 . Then P(A) is .....

A. 1

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

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

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

Answer:

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3. If two coins are tossed, find the probability of the following events.

i. Getting at least one head.

ii. Getting no head.

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4. Form a Road safety committee' of two form 2 boys (B_1, B_2) and 2 girls (G_1, G_2). Write the sample space .

(a) Committee of 2 boys = _____

(b) Committee 2 girls = _____

(c) Committee of one boy and one girl = B_1, G_2 ,_____

Sample space $= \{B_1B_2, B_1, G_1, B_1, G_2, B_2, G_1, B_2, G_1, G_2$

$n(S) = 6$

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5. Out of 200 students from a school, 135 like Kabaddi 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 Kabaddi.

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6. 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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7. 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,

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Problem Set 5

1. Which number cannot represent a probability?

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

B. 1.5

C. 0.15

D. 0.7

Answer: B

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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

Answer: A

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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. $\frac{6}{25}$

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

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

Answer: C

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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 mulitiple of 5 ?

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

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

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

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

Answer: A

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5. In $n(A) = 2, P(A) = \frac{1}{5}$, then $n(S) = ?$

A. 10

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

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

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

Answer: A

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6. Basketball players John, Vasim, Akash were practising 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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7. In a hockey team there are 6 defenders, 4 offenders and 1 goalie . Out of these , one player is to be selected randomly as a captain . Find the probability of the selection that :

i. The goalie will be selected.

ii . A defender will be selected .

8. Joseph kept 26 cards in a cap, bearing one English letter on each card. Onr card is drawn at random. What is the probability that the card drawn is a vowel card ?

9. 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 , a red balloon

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10. 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 , a blue balloo

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11. 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 , a green balloon

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12. A box contains 5 red, 8 blue and 3 green pens.

Rutuja wants to pick a pen at random.What is the probability that the pen is blue?

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13. A box contains 30 tickets , bearing only one number form 1 to 30 on each . If one ticket is drawn at random , find the probability of an event that the ticket drawn bears .

an odd number

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14. A box contains 30 tickets , bearing only one number form 1 to 30 on each . If one ticket is drawn at random , find the probability of an event that the ticket drawn bears

a complete square number .

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15. 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 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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16. 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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17. 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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18. Each card bears one letter from the word 'mathematics'. The cards are placed on a table upide down. Find the probability that a card drawn bears the letter 'm'.

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19. Out of 200 students from a school, 135 like Kabaddi 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 Kabaddi.

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20. A two digit number is to be formed the digit 0,1,2,3,4. Repetition of the digit is allowed . Find the probability that the number so formed is a -

Prime number

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21. A two digit number is to be formed the digit 0,1,2,3,4. Repetition of the digit is allowed . Find the probability that the number so formed is a -

multiple of 4

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22. A two digit number is to be formed the digit 0,1,2,3,4. Repetition of the digit is allowed . Find the probability that the number so

formed is a -

multiple of 11

23. The faces of a die bear number 0,1,2,3,4,5. If the die is rolled twice, then find the probability that the product of the digits on the upper face is zero.