MATHS

BOOKS - NAVBODH MATHS (HINGLISH)

PROBABILITY

5 1

1. Which of the following cannot represent the probability ?

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

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

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

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

Answer: A

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2. A die is rolled. What is the probability that the number of on the upper face is less than 2?

A. 1

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

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

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

Answer: D

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3. What is the probability of the event that a number chosen from 1 to 30 is an odd number ?

A. $20\ \%$

B. $40\ \%$

C. $50\ \%$

D. $60\ \%$

Answer: C

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4. If $P(A) = \frac{3}{5}, n(A) = 24,$ then $n(S) = ?$

A. 3

B. 5

C. $\frac{72}{5}$

D. 40

Answer: D

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5. Two coins are tossed simutlaneously. What is the probability of getting at least one tail ?

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

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

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

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

Answer: A

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

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

B. $\frac{1}{26}$

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

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

Answer: B

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7. The probability of failure is 0.25%. What is the probability of success ?

A. 0.9975

B. 99.75

C. 0.75

D. 0.075

Answer: A

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8. 25 students, out of 150 students, have skywatch as a hobby. What is the probability of a student not having skywatch as a hobby ?

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

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

C. $\frac{1}{25}$

D. $\frac{1}{125}$

Answer: B

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5 2

1. Write the sample space S and the number of sample points n(S),

(i) A coin is tossed

(ii) A die is rolled

(iii) Two coins are tossed simultaneously.

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2. A die is rolled. Write the probability of the evetn A getting (i) an odd number (ii) an even number (iii) multiple of 3.

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3. Two coins are tossed simulataneously. Find the probability of event A of getting (i) one head (ii) at least one head (iii) no head.

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4. If $n(A) = 4, n(S) = 12,$ what is P(A)?

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5. If $P(A) = \frac{3}{4}, n(A) = 39,$ what is n(S)?

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6. If $P(A) = \frac{3}{8}, n(S) = 16,$ what is n(A) ?

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7. Two coins are tossed simultaneously. What is the probability of event A of getting (i) at the most one head (ii) at least one tail.

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5 3

1. Three coins are tossed simultaneously :

(i) P is the event of getting at least two heads.

(ii) Q is the event of getting a tail on the second coin.

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2. A die is rolled :

(i) P is the event of getting an odd number.

(ii) Q is the event of getting a perfect cube number.

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3. Fifty cards berring numbers 1 to 50 are placed in a box. One card is drawn at random. A is the event that the number on the card is divisible by 13. Find P(A).

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4. Two coins are tossed simultaneously. Find the probability of getting

(i) at least one head.

(ii) head on both the coins.

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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. The faces of a die bear the numbers $1, 3, 5, 7, 9, 11$. The die is rolled. Find the probability of getting a perfect square number on the upper face of the dice.

$(i) S = \{1, 3, 5, 7, 9, 11\}$ $(ii) \therefore n(S) = 6$

(iii) Let A be the event of getting a perfect square number. Then

Then $A = \{\square\}$ $\therefore n(A) = \square$

(iv) $P(A) = \dfrac{n(A)}{n(S)} = \dfrac{\square}{\square} = \dfrac{\square}{\square}$

$P(A) = \dfrac{n(A)}{n(S)} = - = -$

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7. The following table shows the blood groups of employees in a bank. Event C is the blood group of an employee is AB.

Blood group	A	B	AB	O
Number of employees	20	40	15	25

An employee is chosen at random. Complete the following activity to find the probability that his blood group is AB.

$n(S) =$ [ ]; $n(C) =$ [ ]; $P(C) =$ [—] = [—].

Activity : $n(S) =$ [100] The total number of employees is 100.

$n(C) =$ [15]; $P(C) =$ [$\frac{n(C)}{n(S)}$] = [$\frac{15}{100}$] = $\frac{3}{20}$.

An employee is chosen at random. Complete the following activity to find the probability that his bond group is AB.

$n(S) = \square\, n(C) = \square, P(C) = \equiv -$.

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8. Two coin are tossed simultaneously. Complete the following activity of writing the sample space (S) and expected outcomes of the events : (i) Event A : to get at least one head (ii) Evetn B : to get no head. If two coins are tossed simultaneously,

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5 4

1. Two dice are rolled simultaneously. Find number of outcomes in: Event A: The sum of the digits on the upper faces is a multiple of 6. Event B: The same digit on both the upper faces.

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2. A coin is tossed and a die is rolled simultaneously.

(i) Condition for event A: To get a head and an odd number.

(ii) Condition for event B : To get a head or a tail and an even number.

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3. Two coins are tossed simutlaneously. What is the probability of getting at least one tail ?

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4. Two coins are tossed. Find the probability of the event

no head turns up.

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5. Two coins are tossed. Find the probability of the event

at the most one tail turns up.

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6. The six faces of a die are marked as shown below: A,B,C,D,E,O.

The event M is getting a vowel on the upper face of the die when it is

rolled. Compete the following activity to find the probability of the event.

$S = \{\square\}$; $\therefore n(S) = \square$; $M = \{\square\}$; $\therefore n(M) = \square$;

$P(M) = \frac{\square}{\square} = \square$

Activity : $S = \{\boxed{\text{A, B, C, D, E, O}}\}$; $\therefore n(S) = \boxed{6}$;

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7. A 'Cleanliness Committee' of two from 2 men (M_1, M_2) and two women (W_1, W_2) is to be formed. Complete the following activity by filling the boxes:

(i) The committee of 2 men $= \square$

(ii) The committee of 2 women $= \square$

(iii) The committee of 1 man and 1 women $= \square, \square, \square, \square$

(iv) The sample space

$= \{- - - - -, - - - - -, - - - - -, - - - - -, -$

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8. In a game of chance, the spinning arrow rests at one of the numbers $1, 2, 3, 4, 5, 6, 7, 8$. All these are equally likely outcomes. Find the probability of the following events.

(i) the arrow rests at an odd number

(ii) it rests at a prime number

(iii) it rests at a multiple of 2.

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9. A box contains 90 cards bearing a number from 1 to 90. Find the probability that the card drawn bears

(i) a two-digit number

(ii) a perfect square number.

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10. A bag contains in all 80 balls. Some of them are white, some are blue and some are red. The number of white balls is 12 times the number of

blue balls. The number of red balls is less than the number of white balls but more than the number of blue balls. If one ball is selected at random from the bag, what is the probability that it is red ?

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11. Read the following passage and answer the question

The results of a random experiment is known as an outcome. The set of all possible outcomes of a random experiment is called the sample space. It is denoted by S.

The outcomes satisfying particular condition are called favourable outcomes.

A set of favourable outcomes is called an event. Event is a subset of the sample space.

There are different types of events.

(a) An event consisting of only one sample point is called an ememtntary event.

(b) An event which does not contain any sample point is called an impossible event.

How many outcomes are there in a random experiment of tossing two coins simultaneously? What are they ?

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12. Read the following passage and answer the question

The results of a random experiment is known as an outcome. The set of all possible outcomes of a random experiment is called the sample space. It is denoted by S.

The outcomes satisfying particular condition are called favourable outcomes.

A set of favourable outcomes is called an event. Event is a subset of the sample space.

There are different types of events.

(a) An event consisting of only one sample point is called an ememtntary event.

(b) An event which does not contain any sample point is called an impossible event.

Write two elementary events of the above experiments.

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13. Read the following passage and answer the question

The results of a random experiment is known as an outcome. The set of all possible outcomes of a random experiment is called the sample space. It is denoted by S.

The outcomes satisfying particular condition are called favourable outcomes.

A set of favourable outcomes is called an event. Event is a subset of the sample space.

There are different types of events.

(a) An event consisting of only one sample point is called an ememtntary event.

(b) An event which does not contain any sample point is called an impossible event.

Write an impossible event in a random experiment of rolling a die.

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Assignement 5 1

1. Which of the following can pepresent the probability ?

A. 1.25

B. 1.5

C. 1.75

D. 0.75

Answer: D

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2. Two coins are tossed simultaneously. What is the probability of getting tail on both the coins ?

A. 0.25

B. 0.50

C. 0.75

D. 0

Answer: A

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3. A die is rolled. What is the probability of getting a number less than 7 on the upper face ?

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

B. 1

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

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

Answer: B

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4. If $P(B) = 0.75, n(S) = 100,$ then what is $n(B)$?

A. 25

B. 75

C. 750

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

Answer: B

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5. Two coins are tossed simultaneously. What is the probability of getting at the most one head?

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

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

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

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

Answer: D

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6. A card is drawn at randonm from a well-shuffled pack of 52 cards. What is the probability of drawing a red card ?

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

B. $\frac{1}{26}$

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

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

Answer: C

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7. Three coins are tossed simultaneously. What is the probability of getting no head ?

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

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

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

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

Answer: A

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8. Two-digit number are formed using the digits $0, 1, 2, 3, 4$ without repeacting the digits. What is n(S) ?

A. 14

B. 16

C. 18

D. 20

Answer: B

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Assignement 5 2

1. Write the sample space S and the number of sample points n(S):

(i) Three coins are tossed simultaneously (ii) A coin is tossed and a die is rolled simultaneously.

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2. A die is rolled, A is the event of getting (i) a prime number (ii) a number less than 5. Write event A, n(A), P(A).

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3. There are 2 red, 3 white and 5 blue balls in a bag. A ball is drawn at random from the bag. Write the probability of event A that the ball is (i)

red (ii) not red.

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4. A die is rolled. Find the probability of getting a number greater than 6.

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5. There are 3 boys and 3 girls. A group of 2 is to be formed. What is the number of sample point ?

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Assignement 5 3

1. In each of the following experimets, write the sample space (S), the number of sample point [n(S)], events E_1 and E_2 using set form, $n(E_1)$ and $n(E_2)$: In each of the following events two coins are tossed

simuntaneously. (i) E_1 is the event of not getting a head. (ii) E_2 is the event of getting at the most one tail.

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2. In each of the following experimets, write the sample space (S), the number of sample point [n(S)], events E_1 and E_2 using set form, $n(E_1)$ and $n(E_2)$:

Two-digit numbers, using the digits 5,6,7, are formed without repeating the digits.

(i) E_1 is the event that the number is divisible by 3.

(ii) E_2 is the event that the number is a prime number.

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

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4. There are 3 red, 3 white and 3 greeen balls, of the same size, in a box. One ball is drawn at random from the box.Find number of outcomes in: (i) A is the event of neither getting a red ball nor getting a green ball. (ii) B is the event of getting a red ball or green ball.

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5. A coin is tossed and a die is rolled simultaneously. (i) P is the event of getting a head and number less than 4. (ii) Q is the event of getting a tail and an event prime number.

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6. Thirty cards baring numbers 1 to 30 are placed in a box. One card is drawn at random. Complete the following activity to find the probability of the event A than the number on the card is divisible by 8.

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7. In a class of 42 students. 3 students use spectacles. Complete the following activity to find probability of a student, selected at random, wearing spectacles.

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Assignement 5 4

1. In each of the experiments, write the events using set notation and mention the total number of elements in each of them. Find the probability of each event :

Three coins are tossd simultaneously. (i) R is the event of getting at least two heads. (ii) Q is the event of getting at least one tail.

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2. In each of the experiments, write the events using set notation and mention the total number of elements in each of them. Find the probability of each event :

A die is rolled. (i) A is the event of getting a number less than 4,(ii) B is the event of getting a prime number.

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3. In each of the experiments, write the events using set notation and mention the total number of elements in each of them. Find the probability of each event :

Two coins are tossed simultaneously. (i) X is the event of getting at least two heads. (ii) Y is the event of getting at least one tail.

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4. One lottery ticket is drawn at random from a bag containing 20 tickets numbered 1 to 20. Find the probability that the number on the ticket is (i)

divisible by 4 (ii) the prime number.

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5. If three coins are tossed simultaneously, then find the probability of the following events :

(i) Event A : No head appears

(ii) Event B : Head appears at least twice

(iii) Event C: Head appears twice.

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6. A card is drawn at random from a pack of well-shurffled 52 playing cards. What is the probability that the card drawn is (i) a queen? (ii) a black card" (iii) not a face card ?

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7. A bag contains 3 red, 4 black and 5 green balls of the same size. A ball is drawn at random from the bag. What is the probability that the ball drawn is (i) red? (ii) not black? (iii) black ?

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8. A box contains 4 oranges, 6 apples and 5 mangoes. One fruit is drawn at random from the box. What is the probability that the fruit drawn is (i) not an orange? (ii) not a mango?

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9. A card is drawn at random from a pack of well-shuffled 52 playing cards. What is the probability that the card drawn is (i) a jack? (ii) a spade? (iii) not a red card?

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10. Two-digit numbers are formed from the digits $0, 1, 2, 3, 4$ where the digits are not repeated. Find the probability that the number so formed is a prime numbers.

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11. A card is drawn at random from a well-shuffled pack of 52 plating cards. Completer the following activity to find the probability of the events that the card drawn is (a) a king (b) a face card.

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12. Two-digit numbers are formed from the digits 0,1,2,3 without repetition. Complete the following activity to find the probability that the number so formed is a prime number.

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