MATHS

BOOKS - OSWAAL PUBLICATION MATHS (KANNADA ENGLISH)

PROBABILITY

Topic 1 Empirical Probability Multiple Choice Questions

1. Probability of a certain event:

A. 0

B. 1

C. less than 0

D. more than 1

Answer: B

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2. If the occurrence of one event prevents the occurrence of another event then they are.....

A. Complementary event

B. Impossible event

C. Mutually exclusive event

D. Certain event

Answer: C

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3. The probability of getting an even number, when a die is thrown once, is:

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

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

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

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

Answer: A

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4. A box contains 90 discs, numbered from 1 to 90. If one disc is drawn at random from the

box, the probability that it bears a prime-number less than 23, is:

A. $\frac{7}{90}$

B. $\frac{10}{90}$

C. $\frac{4}{45}$

D. $\frac{9}{89}$

Answer: C

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5. The probability of getting a perfect square number from the numbers 1 to 10 is:

A. $\frac{3}{10}$

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

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

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

Answer: A

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6. From numbers 3, 5, 7, 7, 7, 9, 9, 9, 9, one number is selected at random. The probabilty that the selected number is mean, is given by:

A. $\frac{1}{10}$

B. $\frac{3}{10}$

C. $\frac{7}{10}$

D. $\frac{9}{10}$

Answer: B

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7. A die is thrown once. The probabilty of getting a prime number is:

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

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

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

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

Answer: B

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8. The probability of getting a rotten eggs in a lot of 400 eggs is 0.035. The number of rotten eggs in the lot is:

A. 7

B. 14

C. 21

D. 28

Answer: B

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9. A die is thrown once. The probabilty of getting a number 3 or 4 is:

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

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

C. 0

D. 1

Answer: A

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10. In a throw of a pair of dice, the probabilty of getting a doublet is:

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

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

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

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

Answer: C

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11. In tossing a die, the probabilty of getting an odd number or a number less than 4 is:

A. 1

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

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

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

Answer: C

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12. A card is drawn from a well shuffled deck of playing cards. The probability of drawing cards. The probability of drawing a red face card is:

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

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

C. $\frac{4}{26}$

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

Answer: B

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13. The probability of getting 53 fridays in a leap year is:

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

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

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

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

Answer: B

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14. If three coins are tossed simultaneously, then the probability of getting no head, is:

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

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

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

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

Answer: C

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15. The probability of getting a sum of 9, when two dice are thrown simultaneously is:

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

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

C. $\frac{1}{27}$

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

Answer: B

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16. The probabilty that a leap year selected at random has 53 Sundays, is:

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

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

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

D. 1

Answer: B

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17. A letter of English alphabet is chosen at random. The probability that the letter is a consonant is:

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

B. $\frac{20}{26}$

C. $\frac{21}{26}$

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

Answer: C

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18. A coin is tossed 1000 times and 560 times a "head" occurs. The empirical probability of occurance of a head in this case is:

A. $0 \cdot 5$

B. $0 \cdot 56$

C. $0 \cdot 44$

D. $0 \cdot 056$

Answer: B

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19. Two coins are tossed 200 times and the following outcomes are connected:

HH	HH/TH	TT
56	110	34

What is the emperical probability of occurance of at least one head in the above case?

A. 0.33

B. 0.34

C. 0.66

D. 0.83

Answer: D

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20. A die is thrown 200 times and the following outcomes are noted with their frequencies:

Outcomes	1	2	3	4	5	6
Frequency	56	22	30	42	32	18

(i) What is the emperical probability of getting 1 in the above case?

A. 0.28

B. 0.22

C. 0.15

D. 0.21

Answer: B

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21. A die is thrown 200 times and the following outcomes are noted with their frequencies:

Outcomes	1	2	3	4	5	6
Frequency	56	22	30	42	32	18

(ii) What is the emperical probability of getting a number less than 4?

A. 0.5

B. 0.54

C. 0.46

D. 0.52

Answer: B

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22. A die is thrown 200 times and the following outcomes are noted with their frequencies:

Outcomes	1	2	3	4	5	6
Frequency	56	22	30	42	32	18

(iii) Whar is the emperical probability of getting a number greater than 4?

A. 0.32

B. 0.25

C. 0.18

D. 0.3

Answer: B

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23. On a particular day, the number of vehicles passing a crossing is given below:

Vehicle	Frequency
Two wheeler	52
Three wheeler	51
Four wheeler	77

What is the probability of a two wheeler passing the crossing on that day?

A. 0.26

B. 0.71

C. 0.385

D. 0.615

Answer: A

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24. The following table shows tha blood-groups of 100 students:

Blood group	Number of Students
A	12
B	23
O	35
AB	20
B^+	10

One student is chosen at random. What is probability that his blood group is B^+:

A. 0.12

B. 0.35

C. 0.2

D. 0.1

Answer: D

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25. In a bag, there are 100 bulbs out of which 30 are bad ones. A bulb is taken out of the bag

at random. The probability of the selected bulb to be good as:

A. 0.5

B. 0.7

C. 0.3

D. none of these

Answer: B

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Topic 1 Empirical Probability Very Short Answer Type Questions

1. Write the formula for calculating the probability of occurance of an event.

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

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3. A card is drawn at random from a pack of cards:

(a) Find the probability of this being a card of spade.

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4. A card is drawn at random from a pack of cards:

(b) Find the probability of this being not an ace.

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5. In a single throw of a die, find the probability of getting a number grater than 2.


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6. Find possible outcomes for prime numbers between 2 and 17.


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7. A pair of dice is thrown simultaneously, what is the probability of getting a doublet?

8. In a lottery, there are 10 prizes and 20 blanks, find the probability of getting a prize.

9. Write the sum of the probabilities of all the elementary events of an experiment.

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Topic 1 Empirical Probability Short Answer Type Questions

1. A die is thrown once. Find the probability of getting

a number lying between 2 and 6 .

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2. An unbiased cubical die whose faces are numbered 1 to 6 is rulled once. Find the probability of getting a swuare number on the top face.

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3. There are 6 red, 7 white and 7 black marbles in a box. Two marbles are drawn from the box at random. Find the probability that bothe the marbles are red.

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4. A bag contains 27 balls of which some are White and others are Red. A ball is choosed at random. The probability of getting a Red ball is $\frac{2}{3}$. Find the number of White balls.

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5. A card is drawn at random from a well shuffled deck of playing cards. Find the

probability that the card drawn is:

(a) a card of spade (b) a red king.

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6. Two coins are tossed together. Find the probability of getting both heads or both tails.

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7. A bag contains cards bearing numbers from 11 to 30. A card is taken out of the bag at

random. Find the probability that the selected card has multiple of 5 on it.

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8. A bag contains 5 red, 8 green, and 7 white balls. One ball is drawn at random from the bag, find the probability of getting:

(a) not a white ball,

(b) neither a green nor a red ball.

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9. One card is drawn fram a well shuffled deck of 52 cards. Find the probability of getting:

(a) a non-face card,

(b) a black king.

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10. A bag contains 6 red, 3 black and 6 white balls. A ball is selected at random from the bag. Find the probability that the selected ball is:

(a) a red or black

(b) not black

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11. Two dice are thrown together. What is the probability of getting a doublet?

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12. A die is thrown once. Find the probability of getting:

(a) an even prime number

(b) a multiple of 3

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Topic 1 Empirical Probability Long Answer Type Question I

1. The king, queen and jack of clubs are removed from a pavk of 52 playing cards and then the remaining pack is well shuffled. One card is selected from the remaining cards. Find

the probability of getting.

(a) a heart,

(b) a king,

(c) a club

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Topic 2 Theoretical Probability Multiple Choice Questions

1. Probability of getting 3 heads or 3 tails in tossing a coin 3 times is:

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

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

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

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

Answer: D

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2. Two dice marked 1 to 6 on each is rolled once simultaneously. The probability of getting equal numbers on their top is:

A. $\frac{6}{36}$

B. $\frac{36}{6}$

C. 1

D. 0

Answer: A

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3. Probability of an impossible event is:

A. 0

B. 1

C. 10

D. 100

Answer: A

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4. The probability of winning a game is $\frac{5}{6}$. Then the probability of losing it is:

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

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

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

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

Answer: D

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5. If P(E) = 0.20, then the probability of 'not E' is:

A. 0.2

B. 0.8

C. 0.5

D. 0.7

Answer: B

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6. A girl calculate the probability of her winning the game in a match and finds it 0.08. What is the probability of her losing the game?

A. 0.91

B. 0.08

C. 0.92

D. 0.8

Answer: C

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7. 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 ?

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

B. 0

C. 1

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

Answer: B

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8. If probability of happening of an event is $\frac{5}{9}$, then the probability of non-happening of this event is:

A. 0

B. 1

C. $\frac{4}{9}$

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

Answer: C

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9. which one of the following cannot be the probability of an event?

A. 1.1

B. 0.1

C. 0.9

D. 0.05

Answer: A

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10. The probability of a sure event is:

A. 2

B. -2

C. 0

D. 1

Answer: D

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Topic 2 Theoretical Probability Very Short Answer Type Questons

1. Two coins are tossed together. What is the probability of getting exactly one head.

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2. What is the probability of a sure event?

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3. What is the probability of an impossible event?

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4. If the probability of occurance of an event is 0.6, then find the probability of its non-occurance.

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5. If A and B are mutually exclusive events and P(A) = $0 \cdot 28$, P(B) = $0 \cdot 44$, find $P\left(\overline{A}\right)$.

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Topic 2 Theoretical Probability Short Answer Type Questions

1. A die numbered 1 to 6 on its faces is rolled once. Find the probability of getting either even number or multiple of '3' on its top face.

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2. In a random experiment there is a chance of win or lose. But the probability of winning is

four times the lose then find the probability of win?

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3. Two dice are thrown simultaneously. Find the probability of getting.

same number on both faces and

(b) both faces havung multiple of five.

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4. Nine rotten mangoes are mixed with 30 gond ones. One mango is chosen at random. What is the probability of choosing a:

(a) good mango? (b) rotten mango?

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5. A box contains 144 pens of which 20 are defective and the others are good. A person will buy a pen if it is good and will not buy if it is defective. The shopkeeper draws one pen

from the box at random and gives it to the person. What is the probability that the person

(a) will buy it? (b) will not buy it?

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6. The probability that it will rain on a particular day is $0 \cdot 64$. What is the probability that it will not rain on that day?

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7. The probability of picking a non-defective item from a sample is $\frac{7}{12}$. Find the probability of picking a defective item.

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8. If A is an event of a random ecperiment such that $P(A) : P\left(\overline{A}\right) = 6 : 15$, then find:

(a) P(A) (b) $P\left(\overline{A}\right)$

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9. A abd B are mutually ecxclusive events such that $P(A) = \frac{3}{5}$ and $P(B) = \frac{2}{7}$ then find $P(A \cup B)$.

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10. When a die is thrown, find the probability that either an odd number or a multiple of 4 occurs.

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11. One number card is choosen randomly from the number cards 1 to 25. Find the probability that it is divisible by 3 or 11.

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Topic 2 Theoretical Probability Long Answer Type Questions I

1. A number is selected at random from 1 to 50. What is the probability that it is

(a) a prime number

(b) not a perfect cube

(c) a perfect square

(d) a triangular number

(e) a multiple of 6

(f) not a multiple of 2

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Textbook Corner Exercise 14 1

1. Complete the statements:

(a) Probability of event E + Probability of event

'not E' = _____.

(b) The probability of an event that cannot happen is _____. Such an event is called_____.

(c) The probability of an event thai is certain to happen is _____. Such an event is called_____ sure or certain event.

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

(e) The probability of an event greater than or equal to _____and less than or equal to _____.

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2. 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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3. Which of the following cannot be the probability of an event?

A. 2/3

B. 1.5

C. 0.15

D. 0.7

Answer: B

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

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5. A bag contains lemon flavoured candies only . Malini takes out one candy without looking into the bag . What is the probability that the she takes out

(i) an orange flavoured candy ?

(ii) a lemon flavoured candy ?

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6. 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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7. 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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8. A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What s the probability that the marble taken out will be

(i) red?

(ii) white?

(iii) not green?

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9. 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 the bank is trued upside down, what is the probability that the coin (i) will be a 50 p coin ? (ii) will bot be a Rs 5 coin ?

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10. 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 . What is the probability that the fish taken out is a male fish ?

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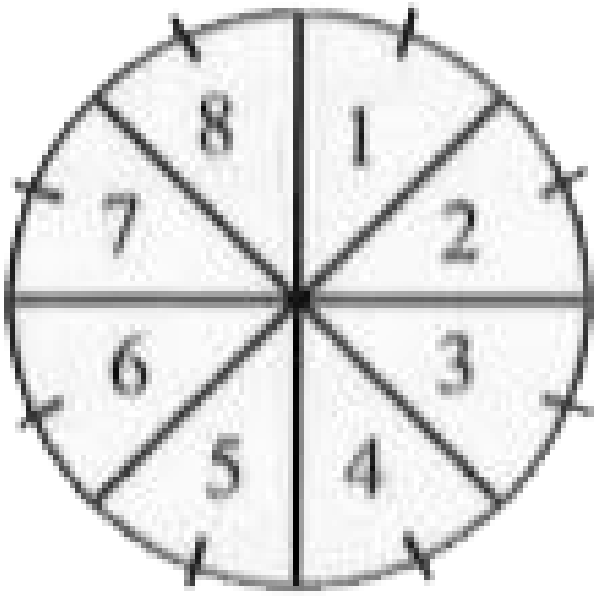
11. A game of chance consists of spinning an arrow which comes to rest pointing at one of the nimbers 1, 2, 3, 4, 5, 6, 7, 8 (see figure) and these are equally likely outcomes. What is the probability that it will point at:

(i) 8?

(ii) an odd number?

(iii) a number greater than2 ?

(iv) a number less than 9?



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12. 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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13. One card is drawn fram 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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14. Five cards - then ten, jack, queen, king and ace of diamonds, are well shuffled with their face downwards. One card is then picked up at random.

(i) What is the probability that the card is the queen?

(ii) If the queen is drawn and put side, what is

the probability that the second card picked up is

(a) an ace?

(b) a queen?

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15. 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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16. (i) A lot of20 bulbs sontains 4 defective ones. One bulb is drawn at random from the lot. What is the probability that this bulb is defective?

(ii) Suppose the bulb drawn in (i) is not defective and is not replaced. Now one bulb is

drawn at random from the rest. What is the probability that this bulb is not defective?

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

(i) a two-digit number

(ii) a perfect square number

(iii) a number divisible by 5.

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

A die is thrown once.What is the probability of getting i) A ii)D

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19. Suppose you drop a die at random on the rectangular region . What is the probability that it will land inside the circle with diameter 1 m?

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20. A lot consists of 144 ball pens of which 20 are defective and the others are good. Nuri will buy a pen if it is good, but will not buy if it is defective. The shopkeeper draws one pen at

random and gives it to her. What is the probability that:

(i) she will buy it?

(ii) she will not buy it?

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21. 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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22. A die is thrown twice. What is the probability that:

(i) 5 will not come up either time?

(ii) 5 will come up at least once?

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23. 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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Textbook Corner Exercise 14 2

1. Two customers Shyam and Ekta are visiting a particular shop in the samw 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 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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3. A box contains 12 balls out of which x are black. If one ball is dran 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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4. A jar contains 24 marbles, some are green and othes are blue. If a marble is drawn at random from the jar, the probability that it is green is 2/3.

Find the number of blue balls in the jar.

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