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| Division | 10th |
| Subject | Mathematics |
| Chapter | Probability |
| Author | Ruhani kashni |
| Category | 04 |

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| **One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting A king of the red suit?**  **(2021)** |
| 1/22 |
| 1/24 |
| 1/26 |
| 1/28 |
| C |
| Probability = Number of favourable outcomes/ Total number of outcomes |
| The total number of cards is 52  The total number of cards which is the king of the red suit is 2    Probability = Number of favourable outcomes/ Total number of outcomes  Thus, the probability of getting cards which is the king of the red suit = 2/52 = 1/26 |
| Basic concepts of probability |

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| **One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting A face card ?**  (2020) |
| 1/13 |
| 2/13 |
| 3/13 |
| 4/13 |
| C |
| Total number of face cards is 12  Probability = Number of favourable outcomes/ Total number of outcomes |
| The total number of face cards is 12  The number of favourable outcomes, i.e., the total number of face cards, is 12  Probability = Number of favourable outcomes/ Total number of outcomes  probability of getting a face card = 12/52 = 3/13 |
| Basic concepts of probability |

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| **One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting A queen of the black suit**  **(2021)** |
| 1/22 |
| 1/24 |
| 1/26 |
| 1/28 |
| C |
| Probability = Number of favourable outcomes/ Total number of outcomes |
| The total number of the queen of black suit cards is 2    The total number of favourable outcomes, i.e., the total number of the queen of black suit cards, is 2  Probability = Number of favourable outcomes/ Total number of outcomes  probability of getting cards which is a queen of black suit =2/52 = 1/26 |
| **Types of events** |

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| **One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting A jack of hearts ?**  **(2020)** |
| 1/52 |
| 1/27 |
| 2/52 |
| 2/27 |
| A |
| Probability = Number of favourable outcomes/ Total number of outcomes  total number of jack of hearts is 1 |
| The total number of jack of hearts is 1    Probability = Number of favourable outcomes/ Total number of outcomes  Thus, the probability of getting a card which is a jack of hearts =1/52 |
| **Types of events** |

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| **One card is drawn from a well-shuffled deck of 52 cards. Find the probability of getting A spade ?**  **(2021)** |
| 1/2 |
| 31/3 |
| ¼ |
| 1/5 |
| C |
| Probability = Number of favourable outcomes/ Total number of outcomes |
| The total number of spade cards is 13    The total number of favourable outcomes, i.e., the total number of spade cards, is 13  Probability = Number of favourable outcomes/ Total number of outcomes  probability of getting a spade card =13/52 = ¼ |
| **Probability of simple events** |

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| **Five cards – ten, jack, queen, king, and an ace of diamonds are shuffled face downwards. One card is picked at random. What is the probability that the card is a queen?**  **(2020)** |
| 1/6 |
| 1/5 |
| 1/4 |
| 1/3 |
| B |
| Number of favourable outcomes, i.e., the total number of cards which is queen =1  Probability = Number of favourable outcomes/ Total number of outcomes |
| The total number of cards is 5  The total number of cards which is a queen is 1  Number of favourable outcomes, i.e., the total number of cards which is queen =1  Probability = Number of favourable outcomes/ Total number of outcomes  probability of getting cards which is a queen =1/5 |
| **Probability of simple events** |

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| **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 Red?**    (2019) |
| 1/8 |
| 2/8 |
| 3/8 |
| 5/8 |
| C |
| Probability = Number of favourable outcomes/ Total number of outcomes |
| The total number of red balls is 3  Probability = Number of favourable outcomes/ Total number of outcomes  Thus, the probability of drawing a red ball =3/8 |
| **Probability of compound events** |

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| **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 Black?**    (2022) |
| 1/8 |
| 2/8 |
| 3/8 |
| 5/8 |
| D |
| Probability = Number of favourable outcomes/ Total number of outcomes |
| The total number of the black ball is 5  Probability = Number of favourable outcomes/ Total number of outcomes  Thus, the probability of drawing a black ball =5/8 |
| **Probability of compound events** |

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| **In a class, there are 18 girls and 16 boys. The class teacher wants to choose one pupil for the class monitor. What she does is she writes the name of each pupil on a card and puts them into a basket and mixes them thoroughly. A child is asked to pick one card from the basket. What is the probability that the name written on the card is the name of a girl?**  **(2021)** |
| 6/13 |
| 7/11 |
| 8/13 |
| 9/17 |
| D |
| Probability = Number of favourable outcomes/ Total number of outcomes |
| The total number of students in the class = 18 + 16 = 34  The names of a girl are 18, so the number of favourable cases is 18  Probability = Number of favourable outcomes/ Total number of outcomes  the probability of getting the name of a girl on the card = 18/34 = 9/17 |
| **Complementary events** |

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| **What is the probability that a number selected at random from the numbers 1, 2, 2, 3, 3, 3, 4, 4, 4, 4 will be their average?**  **(2021)** |
| 1/10 |
| 3/10 |
| 5/10 |
| 7/10 |
| B |
| number of favourable outcomes = 3 {3, 3, 3}  P(E) = Number of favourable outcomes/ Total number of outcomes |
| The total number of possible outcomes = 10  Average =    =30/10  =3  number of favourable outcomes = 3 {3, 3, 3}  P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =3/10 |
| **Complementary events** |

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| **There are 30 cards, of the same size, in a bag on which numbers 1 to 30 are written. One card is taken out of the bag at random. Find the probability that the number on the selected card is not divisible by 3.**  (2020) |
| 1/7 |
| 1/3 |
| 2/7 |
| 2/3 |
| D |
| Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =10/30  =1/3 |
| The total number of possible outcomes is 30 {1, 2, 3, … 30}  Let E = The event of getting a number that is divisible by 3  favourable outcomes = 10{3, 6, 9, 12, 15, 18, 21, 24, 27, 30}  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =10/30  =1/3  R D Sharma Solutions For Class 10 Maths Chapter 13 Probability ex 13.1 - 8Then, = Event of getting number not divisible by 3  R D Sharma Solutions For Class 10 Maths Chapter 13 Probability ex 13.1 - 7  =2/3 |
| Mutually exclusive and non-mutually exclusive events |

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| **A bag contains 5 red, 8 white and 7 black balls. A ball is drawn at random from the bag. Find the probability that the drawn ball is red or white?**  **(2022)** |
| 11/20 |
| 12/20 |
| 13/20 |
| 14/21 |
| C |
| Probability, P(E) = Number of favourable outcomes/ Total number of outcomes |
| The total number of possible outcomes = 20 (5 red, 8 white & 7 black}  No. of favourable outcomes = 13 (5 red + 8 white)  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =13/20 |
| Mutually exclusive and non-mutually exclusive events |

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| **A bag contains 5 red, 8 white and 7 black balls. A ball is drawn at random from the bag. Find the probability that the drawn ball is neither white nor black**    (2021) |
| 1/4 |
| 2/5 |
| 3/7 |
| 4/9 |
| A |
| Probability, P(E) = Number of favourable outcomes/ Total number of outcomes |
| No. of favourable outcomes = 20 – 8 – 7 = 5(total balls – no. of white balls – no. of black balls)  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) = 5/20 = ¼ |
| **Multiplication theorem of probability** |

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| **Find the probability that a number selected from the number 1 to 25 is not a prime number when each of the given numbers is equally likely to be selected**  (2018) |
| 13/25 |
| 14/25 |
| 15/25 |
| 16/25 |
| D |
| Favourable outcomes are 2, 3, 5, 7, 11, 13, 17, 19, 23  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes |
| Favourable outcomes are 2, 3, 5, 7, 11, 13, 17, 19, 23.  No. of favourable outcomes =9  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =9/25  The, E=Event of not getting a prime  R D Sharma Solutions For Class 10 Maths Chapter 13 Probability ex 13.1 - 12 |
| **Multiplication theorem of probability** |

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| **Find the probability that a number selected at random from the numbers 1, 2, 3…. 35 is a Prime number?**  (2019) |
| 10/35 |
| 8/35 |
| 11/35 |
| 7/32 |
| C |
| The total no. of possible outcomes = 35  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes |
| The total no. of possible outcomes = 35  No. of favourable outcomes =11 {2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31)  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =11/35 |
| **Conditional probability** |

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| **Find the probability that a number selected at random from the numbers 1, 2, 3…. 35 is a Multiple of 7?**  (2020) |
| 1/4 |
| 1/5 |
| 1/6 |
| 1/7 |
| D |
| Probability, P(E) = Number of favourable outcomes/ Total number of outcomes |
| No. of favourable outcomes = 5 {7, 14, 21, 28, 35}  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =5/35 =1/7 |
| **Conditional probability** |

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| **Find the probability that a number selected at random from the numbers 1, 2, 3…. 35 is a Multiple of 3 or 5 ?**  (2019) |
| 12/35 |
| 13/35 |
| 16/35 |
| 18/35 |
| C |
| Probability, P(E) = Number of favourable outcomes/ Total number of outcomes |
| No. of favourable outcomes = 16 {3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 5, 10, 20, 25, 35}  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =16/35 |
| **Probability distribution** |

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| **From a pack of 52 playing cards, Jacks, queens, kings and aces of red colour are removed. From the remaining, a card is drawn at random. Find the probability that the card drawn is a black queen**  (2017) |
| 1/14 |
| 1/19 |
| 1/20 |
| 1/22 |
| D |
| Probability, P(E) = Number of favourable outcomes/ Total number of outcomes |
| The total no. of cards = 52  Total no. of possible outcomes = 52 – 2 – 2 – 2 – 2 = 44 (remaining cards)  No. of favourable outcomes = 2 (Queen of spade and club)  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =1/22 |
| **Probability distribution** |

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| **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?**  (2020) |
| 0.004 |
| 0.006 |
| 0.008 |
| 0.010 |
| C |
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| If E = The event of 2 students not having the same birthday  Given, P(E) = 0.992  Let, R D Sharma Solutions For Class 10 Maths Chapter 13 Probability ex 13.1 - 15= The event of 2 students having the same birthday  We know that,    =1- P(E)  =1- 0.992  =0.008 |
| **Combining dice and card probabilities** |

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| **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**  (2016) |
| 1/17 |
| 3/17 |
| 5/17 |
| 7/17 |
| C |
| Probability, P(E) = Number of favourable outcomes/ Total number of outcomes |
| The total no. of possible outcomes = 17 (5 red + 8 white + 4 green)  Number of favourable outcomes = 5 (as 5 red marbles)  Probability, P(E) = Number of favourable outcomes/ Total number of outcomes  P(E) =5/17 |
| **Combining dice and card probabilities** |