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| Division | 10th |
| Subject | Mathematics |
| Chapter | Probability |
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| Category | 01 |

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| If an event cannot occur, then its probability is  (2009) |
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| 1 |
| 0 |
| D |
| Probability of an impossible event |
| If an event cannot occur, then its probability is **0**. In probability theory, the probability of an impossible event is always 0. This means that there is no chance or likelihood of the event happening.  If P(A) represents the probability of event A, and event A is impossible, then P(A)=0.  Example: - Suppose you roll a fair six-sided die (with faces numbered 1 to 6),    and you want to find the probability of getting a number greater than 7. Since the maximum number on the die is 6, it's impossible to roll a number greater than 6 or 7. Therefore, the event of rolling a number greater than 7 is impossible |
| Basic concepts of probability |

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| An event is very unlikely to happen. Its probability is closest to  (2010) |
| 0.0 |
| 0.001 |
| 0.0001 |
| 0.1 |
| C |
| Represents a one in ten thousand chance of the event occurring |
| The probability of an event which is very unlikely to happen is closest to zero is 0.0001.  This probability represents a one in ten thousand chance of the event occurring, indicating an extremely low likelihood. |
| Basic concepts of probability |

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| Which of the following cannot be the probability of an event?  (2008) |
| 0.5 |
| -1.5 |
| 0.7 |
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| B |
| Non-Negative number |
| The probability of any event is from 0 to 1 or to .The probability of an event must be a non-negative number between 0 and 1, inclusive. Therefore, the probability cannot be a negative number i.e., -1.5. |
| **Types of events** |

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| Which of the following cannot be the probability of an event?  (2006) |
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| 0.1 |
| 3% |
| A |
| The probability of an event must be a number between 0 and 1, inclusive |
| **17/16:** This is greater than 1, so it cannot represent a probability. Probabilities cannot exceed 1  **1/3:** This is a valid probability as it falls between 0 and 1  **0.1:** This is a valid probability as it represents 10%, falling between 0 and 1  **3% or 0.03:** This is a valid probability as it is equivalent to 3/100, falling between 0 and 1 |
| **Types of events** |

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| If denotes the probability of an event, then  (2011) |
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| D |
| The probability of an event must be a number between 0 and 1, inclusive |
| The probability of any event is from 0 to 1 or to .This inequality represents the fundamental rule of probability. In probability theory, the probability of an event (denoted by P(A)) must always be a number between 0 and 1, inclusive .A probability of 0 indicates that the event will not occur, and a probability of 1 indicates certainty that the event will occur. |
| **Probability of simple events** |

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| The probability expressed as a percentage of a particular occurrence can never be  (2010) |
| less than 0 |
| less than 10 |
| less than 100 |
| less than 1 |
| A |
| The probability of an event must be a number between 0 and 1, inclusive |
| A probability of 100% means that the event is certain to happen, while a probability of 0% means the event is certain not to happen. Percentages greater than 100% do not make sense in the context of probability because an event cannot occur more than 100% of the time. Probability values must always be between 0 and 1 |
| **Probability of simple events** |

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| If the probability of an event is , then the probability of its complementary event will be  (2004) |
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| P |
| 1/P |
| B |
| Probability of the complementary event |
| If the probability of event A occurring is p, then the probability of its complementary event Aˉ (which represents the event not occurring) is 1−p |
| **Probability of compound events** |

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| A card is drawn from a deck of 52 cards. The event is that card is not an ace of hearts. The number of outcomes favourable to is  (2005) |
| 51 |
| 41 |
| 15 |
| 14 |
| A |
| Number of favourable outcomes to E = Total number of cards - Number of ace of hearts |
| In a standard deck of 52 cards, there is only one ace of hearts. To find the number of outcomes favourable to event E (drawing a card that is not an ace of hearts), we subtract the one favourable outcome (ace of hearts) from the total number of cards in the deck:  Number of favourable outcomes to E = Total number of cards - Number of ace of hearts = 52 - 1 = 51 |
| **Probability of compound events** |

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| When a die is thrown, the probability of getting an odd number less than 3 is  (2005) |
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| D |
| P (odd number less than 3) = |
| Odd number is the number which is not divisible by 2  Odd numbers = 3 {1, 3, 5}  Odd numbers less than 3 = 1 {1}  The odd numbers less than 3 is 1 only    Total outcome = 6  P (odd number less than 3) =  = 1/6 |
| **Complementary Events** |

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| The probability of getting an even number, when a die is thrown once, is  (2006) |
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| B |
| P = |
| The possible outcomes when a die is thrown are  number of all possible outcomes  Let be the event of 'getting an even number    the outcomes favourable to are  the number of outcomes favourable to |
| **Complementary events** |

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| When a die is thrown, the probability of getting a prime number is  (2007) |
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| A |
| P = |
| The possible outcomes when a die is thrown are  number of all possible outcomes    Let be the event of 'getting a prime number'. The outcomes favourable to are  the number of outcomes favourable to |
| Mutually exclusive and non-mutually exclusive events |

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| A letter of English alphabets is chosen at random. The probability that the letter chosen is a consonant is  (2010) |
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| C |
| P = |
| There are 26 letters of English alphabets  Number of all possible outcomes  Let be the event that 'the letter chosen is consonant'  There are 21 consonants  the number of outcomes favourable to |
| Mutually exclusive and non-mutually exclusive events |

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| A card is selected from a deck of 52 cards. The probability of its being a red face card is  (2012) |
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| B |
| P = |
| Total number of cards  number of all possible outcomes  Let be the event that 'the selected card is a face card'  In a deck of 52 cards there are 6 red face cards  the number of outcomes favourable to |
| **Multiplication theorem of probability** |

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| One ticket is drawn at random from a bag containing tickets numbered 1 to 40 . The probability that the selected ticket has a number which is a multiple of 5 is  (2009) |
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| D |
| P =  the outcomes favourable to E are |
| The bag contains tickets numbered from 1 to number of all possible outcomes Let be the event that 'the selected ticket ha number which is a multiple of 5'  the outcomes favourable to E are  the number of outcomes favourable to |
| **Multiplication theorem of probability** |

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| The probability that a number selected at random from the numbers is a multiple of 4  (2008) |
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| A |
| P = |
| Number of all possible outcomes  Let be the event that 'the selected number multiple of 4 '. the outcomes favourable to are  the number of outcomes favourable to |
| **Conditional probability** |

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| Two different coins are tossed simultaneously. The probability of getting at least one head is    (2013) |
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| 4 |
| B |
| P = |
| When two coins are tossed, the possible outcomes are HH, HT, TH, TT  number of all possible outcomes  Let be the event of 'getting at least one head'  the outcomes favourable to are HH, HT, TH  the number of outcomes favourable to |
| **Conditional probability** |

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| A lot of 30 bulbs contain 5 defective ones. One bulb is drawn at random from the lot. What is the probability that this bulb is defective?  (2014) |
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| Number of all possible outcomes  P = |
| Total number of bulbs  number of all possible outcomes  Let be the event that 'the bulb is defective'  Number of defective bulbs  the number of outcomes favourable to |
| **Probability distribution** |

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| The probability of getting a bad egg in a lot of 400 is 0.035. The number of bad eggs in the lot is  (2010) |
| 14 |
| 15 |
| 24 |
| 34 |
| A |
| Number of bad eggs = Probability ×Total number of eggs |
| Let the number of bad eggs be  Then, |
| **Probability distribution** |

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| A girl calculates that the probability of her winning the first prize in a lottery is 0.08 . If 6000 tickets are sold, then how many tickets has she bought?  (2007) |
| 481 |
| 408 |
| 480 |
| 840 |
| C |
| Number of tickets bought=Probability × Total number of tickets sold |
| Let the number of tickets be  Then, |
| **Combining dice and card probabilities** |

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| A card is drawn from a well shuffled deck of 52 playing cards. The probability that the card will not be an ace is  (2006) |
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| D |
| P(not an ace) = |
| Total number of cards  number of all possible outcomes  Let be the event that 'the card drawn is not an ace'  In a deck of 52 cards there are 4 ace cards  the number of outcomes favourable to |
| **Combining dice and card probabilities** |