**Probability**

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| 1. | Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 2 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 2 | | 5 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 8 | | 15 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 9 | | 20 | |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Here, S = {1, 2, 3, 4, ...., 19, 20}.  Let E = event of getting a multiple of 3 or 5 = {3, 6 , 9, 12, 15, 18, 5, 10, 20}.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 9 | . | | *n*(S) | 20 | |

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| 2. | A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 10 | | 21 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 11 | | 21 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 2 | | 7 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 5 | | 7 | |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Total number of balls = (2 + 3 + 2) = 7.  Let S be the sample space.   |  |  | | --- | --- | | Then, *n*(S) | = Number of ways of drawing 2 balls out of 7 | |  | = 7C2 ` | |  | |  |  | | --- | --- | | = | (7 x 6) | | (2 x 1) | | |  | = 21. |   Let E = Event of drawing 2 balls, none of which is blue.   |  |  | | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *n*(E) | = Number of ways of drawing 2 balls out of (2 + 3) balls. | |  | = 5C2 | |  | |  |  | | --- | --- | | = | (5 x 4) | | (2 x 1) | | |  | = 10. |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 10 | . | | *n*(S) | 21 | |

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| 3. | In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 3 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 3 | | 4 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 7 | | 19 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 8 | | 21 | | | [**E.**](javascript:%20void%200;) | |  | | --- | | 9 | | 21 | |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Total number of balls = (8 + 7 + 6) = 21.   |  |  | | --- | --- | | Let E | = event that the ball drawn is neither red nor green | |  | = event that the ball drawn is blue. |   http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *n*(E) = 7.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 7 | = | 1 | . | | *n*(S) | 21 | 3 | |

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| 4. | What is the probability of getting a sum 9 from two throws of a dice? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 6 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 1 | | 8 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 1 | | 9 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 1 | | 12 | |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  In two throws of a die, *n*(S) = (6 x 6) = 36.  Let E = event of getting a sum ={(3, 6), (4, 5), (5, 4), (6, 3)}.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 4 | = | 1 | . | | *n*(S) | 36 | 9 | |

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| 5. | Three unbiased coins are tossed. What is the probability of getting at most two heads? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 3 | | 4 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 1 | | 4 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 3 | | 8 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 7 | | 8 | |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Here S = {TTT, TTH, THT, HTT, THH, HTH, HHT, HHH}  Let E = event of getting at most two heads.  Then E = {TTT, TTH, THT, HTT, THH, HTH, HHT}.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 7 | . | | *n*(S) | 8 | |

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| 6. | Two dice are thrown simultaneously. What is the probability of getting two numbers whose product is even? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 2 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 3 | | 4 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 3 | | 8 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 5 | | 16 | |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  In a simultaneous throw of two dice, we have *n*(S) = (6 x 6) = 36.   |  |  | | --- | --- | | Then, E | = {(1, 2), (1, 4), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 2), (3, 4),      (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 2), (5, 4), (5, 6), (6, 1),      (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)} |   http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *n*(E) = 27.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 27 | = | 3 | . | | *n*(S) | 36 | 4 | |

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| 7. | In a class, there are 15 boys and 10 girls. Three students are selected at random. The probability that 1 girl and 2 boys are selected, is: |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 21 | | 46 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 25 | | 117 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 1 | | 50 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 3 | | 25 | |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Let S be the sample space and E be the event of selecting 1 girl and 2 boys.   |  |  | | --- | --- | | Then, *n*(S) | = Number ways of selecting 3 students out of 25 | |  | = 25C3 ` | |  | |  |  | | --- | --- | | = | (25 x 24 x 23) | | (3 x 2 x 1) | | |  | = 2300. |  |  |  | | --- | --- | | *n*(E) | = (10C1 x 15C2) | |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | = | http://www.indiabix.com/_files/images/aptitude/1-sym-obracket-h1.gif | 10 x | (15 x 14) | http://www.indiabix.com/_files/images/aptitude/1-sym-cbracket-h1.gif | | (2 x 1) | | |  | = 1050. |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 1050 | = | 21 | . | | *n*(S) | 2300 | 46 | |

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| 8. | In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 10 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 2 | | 5 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 2 | | 7 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 5 | | 7 | |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | P (getting a prize) = | 10 | = | 10 | = | 2 | . | | (10 + 25) | 35 | 7 | |

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| 9. | From a pack of 52 cards, two cards are drawn together at random. What is the probability of both the cards being kings? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 15 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 25 | | 57 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 35 | | 256 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 1 | | 221 | |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Let S be the sample space.   |  |  |  | | --- | --- | --- | | Then, *n*(S) = 52C2 = | (52 x 51) | = 1326. | | (2 x 1) |   Let E = event of getting 2 kings out of 4.   |  |  |  | | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *n*(E) = 4C2 = | (4 x 3) | = 6. | | (2 x 1) |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 6 | = | 1 | . | | *n*(S) | 1326 | 221 | |

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| 10. | Two dice are tossed. The probability that the total score is a prime number is: |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 6 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 5 | | 12 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 1 | | 2 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 7 | | 9 | |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Clearly, *n*(S) = (6 x 6) = 36.  Let E = Event that the sum is a prime number.   |  |  | | --- | --- | | Then E | = { (1, 1), (1, 2), (1, 4), (1, 6), (2, 1), (2, 3), (2, 5), (3, 2), (3, 4), (4, 1), (4, 3),       (5, 2), (5, 6), (6, 1), (6, 5) } |   http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *n*(E) = 15.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 15 | = | 5 | . | | *n*(S) | 36 | 12 | |
| 11. | A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is: |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 13 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 2 | | 13 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 1 | | 26 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 1 | | 52 | |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Here, *n*(S) = 52.  Let E = event of getting a queen of club or a king of heart.  Then, *n*(E) = 2.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 2 | = | 1 | . | | *n*(S) | 52 | 26 | |

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| 12. | A bag contains 4 white, 5 red and 6 blue balls. Three balls are drawn at random from the bag. The probability that all of them are red, is: |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 22 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 3 | | 22 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 2 | | 91 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 2 | | 77 | |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Let S be the sample space.   |  |  | | --- | --- | | Then, *n*(S) | = number of ways of drawing 3 balls out of 15 | |  | = 15C3 | |  | |  |  | | --- | --- | | = | (15 x 14 x 13) | | (3 x 2 x 1) | | |  | = 455. |   Let E = event of getting all the 3 red balls.   |  |  |  | | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *n*(E) = 5C3 = 5C2 = | (5 x 4) | = 10. | | (2 x 1) |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 10 | = | 2 | . | | *n*(S) | 455 | 91 | |

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| 13. | Two cards are drawn together from a pack of 52 cards. The probability that one is a spade and one is a heart, is: |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 3 | | 20 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 29 | | 34 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 47 | | 100 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 13 | | 102 | |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Let S be the sample space.   |  |  |  | | --- | --- | --- | | Then, *n*(S) = 52C2 = | (52 x 51) | = 1326. | | (2 x 1) |   Let E = event of getting 1 spade and 1 heart.   |  |  | | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *n*(E) | = number of ways of choosing 1 spade out of 13 and 1 heart out of 13 | |  | = (13C1 x 13C1) | |  | = (13 x 13) | |  | = 169. |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P(E) = | *n*(E) | = | 169 | = | 13 | . | | *n*(S) | 1326 | 102 | |

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| 14. | One card is drawn at random from a pack of 52 cards. What is the probability that the card drawn is a face card (Jack, Queen and King only)? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 13 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 3 | | 13 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 1 | | 4 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 9 | | 52 | |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Clearly, there are 52 cards, out of which there are 12 face cards.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif P (getting a face card) = | 12 | = | 3 | . | | 52 | 13 | |

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| 15. | A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 3 | | 4 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 4 | | 7 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 1 | | 8 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 3 | | 7 | |   [**Answer & Explanation**](javascript:%20void%200;)  **Answer:** Option **B**  **Explanation:**  Let number of balls = (6 + 8) = 14.  Number of white balls = 8.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | P (drawing a white ball) = | 8 | = | 4 | . | | 14 | 7 | |