Day-2 07-09-2020

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) 21/46 | B) 1/5 |
| C) 3/25 | D) 1/50 |

**Explanation:** Let , S -  sample space        E - event of selecting 1 girl and 2 boys.

Then, n(S) = Number ways of selecting 3 students out of 25

                = 25C3 = 2300.

n(E) = 10C1×15C2= 1050.

* P(E) = n(E)/n(s) = 1050/2300 = 21/46

2)A basket contains 10 apples and 20 oranges out of which 3 apples and 5 oranges are defective. If we choose two fruits at random, what is the probability that either both are oranges or both are non defective?

|  |  |
| --- | --- |
| A) 136/345 | B) 17/87 |
| C) 316/435 | D) 158/435 |

**Explanation:**

n(s)=30C2

 Let A be the event of getting two oranges and

 B be the event of getting two non-defective fruits.

 and (A∩B)A∩B be the event of getting two non-defective oranges

 ∴ P(A)=20C2/ 30C2, P(B)=22C2 / 30C2  and P(A∩B)=15C2/30C2

 ∴P(A∪B)=P(A)+P(B)−P(A∩B)

=316 / 435

3) Four dice are thrown simultaneously. Find the probability that all of them show the same face.

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| --- | --- |
| A) 1/216 | B) 1/36 |
| C) 2/216 | D) 4/216 |

he total number of elementary events associated to the random experiments of throwing four dice simultaneously is:

= 6\*6\*6\*6=646\*6\*6\*6=64

n(S) = 6464

 Let X be the event that all dice show the same face.

 X = { (1,1,1,1,), (2,2,2,2), (3,3,3,3), (4,4,4,4), (5,5,5,5), (6,6,6,6)}

n(X) = 6

Hence required probability = n(X)/ n(S)=n(X)/n(S)=6/6x6x6x6 =1/216

4) What is the probability of getting 53 Mondays in a leap year?

|  |  |
| --- | --- |
| A) 1/7 | B) 3/7 |
| C) 2/7 | D) 1 |

**Explanation:**

1 year = 365 days . A leap year has 366 days

A year has 52 weeks. Hence there will be 52 Sundays for sure.

52 weeks = 52 x 7 = 364days

366 – 364 = 2 days

In a leap year there will be 52 Sundays and 2 days will be left.

These 2 days can be:

1. Sunday, Monday

2. Monday, Tuesday

3. Tuesday, Wednesday

4. Wednesday, Thursday

5. Thursday, Friday

6. Friday, Saturday

7. Saturday, Sunday

Of these total 7 outcomes, the favourable outcomes are 2.

Hence the probability of getting 53 days = 2/7

5) 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) 1/3 | B) 3/5 |
| C) 8/21 | D) 7/21 |

**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.

n(E) = 7.

P(E) = n(E)/n(S) = 7/21 = 1/3.