Prediction Using Probability- Practice

A committee of 5 people is to be chosen from group of 6 men and 4 women. How many committees are possible if

a) there are to be 3 men and 2 women?

b) there are to be men only? c) there is to be majority of women?

Select the correct answer from the following options:

1.666, 6, 66

2. 120, 6, 66

3. 6, 666, 66

4. 6, 66, 120

Solution

a) 3 Men & 2 Women :

No of ways= 6C3 x 4C2 = 20 x 6 =120

b) Men only:

No of ways= 6C5 = 6C1 = 6

c) Majority of women:

Possible combinations=(3 Women & 2 Male) OR (4 Women & 1 Male)
                     =(4C3 X 6C2) + (4C4 X 6C1)
                      =60 + 6
                      =66

Ans = 2

Five-card stud is a poker game in which a play er deals with 5 cards from an ordinary deck of 52 playing cards. In how many distinct poker hands could a player deal?

[Hint In this problem, the order of dealing cards is NOT important]

Select the correct answer from the following options:

1. 2,598,000

2. 2,000,960

3. 2,598,960

5. 2,500,960

Solution

This is an example of combination
n=52
r=5

$$_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

No of ways : 52C5 = 2598960

Ans = 3

Consider the following 8 contestants for a sports event: Alice, Ava, Charlie, David, Eve, Frank George, Ma

In how many ways can you award a 1st (Gold), 2.d (Silver), and 3 (Bronze) place prizes among the following 8 contestants?

Select the correct answer fromthe following options:

1. 236

2. 336

3.436

4 536

Solution

This is an example of Permutation

n=8
r=3

$$_{n}P_{r} = \frac{n!}{(n-r)!}$$

No of ways = 8P3 =336

Ans = 2

There are 15 students in a class. Two of them are Jenny and David, who don't get along very well in how many ways can the teacher arrange the students in a row so that Jenny and David are not together?

Select the correct answer from the following options:

1. 11,00,31,77,85,600

2. 11,11,31,77,85,600

3. 11,22,31,77,85,600

4. 11,33,31,77,85,600

Solution

No of ways 15 students can arrange in 15 places in rows = 15 !

No of ways Jenny & David can sit together in 15 places in rows =2 X 14!

**No of ways teacher can arrange the students in a row so that Jenny and David are not together
 = 15 ! - (2 X 14!)
=1133317785600**

Ans = 4

Suppose two dice are rolled together. What would be the probability if the number obtained on one of the dice is thrice the number obtained on the other side?

Select the correct answer from the following options:

1.1/4

2. 1/6

3.1/9

5. 1/36

Solution

Favourable Outcomes= (1,3), (3,1), (2,6), (6,2)

No of favourable outcomes = 4

No of elements in a sample space = 36

Probability = No of favourable outcomes / No of elements in a sample space = 4/36 = 1/9

Ans = 3

Suppose there are 7 consonants and 4 vowels in a word. How many words can be formed with 3 consonants and 2 vowels?

Solution

No of ways 3 consonants can be selected from 7 consonants= 7C3

No of vowels ways 2 vowels can be selected from 4 vowels = 4C2

No of ways selected 3 consonants & 2 vowels can be arranged to form 5 letter word = 7C3 X 4C2 X 5! = 25200

Ans = 25200

A pack of 25 bulbs contains 25% defective bulbs. A bulb is drawn randomly from the pack The drawn bulb is good and not placed back if one more bulb is drawn randomly, what would be the probability that this bulb is good?

Select the correct answer fromthe following options:

1. 18/24!

2. 19/25!

3. 18/24

4.19/25

Solution

No. of defective bulbs: 0.25x25= 6.25 ≈ 6

No. of good bulbs = 25-6= 19

One bulb is drawn from 25 bulbs which is good

Now Total no. of bulbs = 25-1 =24

Number of good bulbs = 19- 18

Probability of getting good bulb = 18/24

Ans = 3