**Problem​ ​Statement​ ​1:**

**A die marked A to E is rolled 50 times. Find the probability of getting a “D” exactly 5**

**times.**

**Solution:**

Number of trials, n = 50

There are 5 possibilities, A – E = 5

Probability of success, i.e, probability of getting D = 1/5

Probability of not getting D, Probability of failure = 1 – 1/5 = 4/5

Going by the Binomial distribution,

**P(x) = n! / (x! (n-x)!) \* P(s)^x \* (1-P(s)) ^(n-x)**

X = 5, n = 50, p(s) = 1/5

P(5) = 50! / (5! \* (50 – 5)!) \* (1/5) ^ 5 \* (4/5) ^ 45

= 2118760 \* 0.00032 \* 4.3556142965880123323311949751266e-5

= 0.0295312043105242144296001365296

Hence, the probability of exactly getting D on the die, when rolled 50 times is 0.0295 approx