Step 1: Here the total number of events, n = 50

The probability of success i.e. p(getting a letter ‘D’), p = 1/5

The probability of failure i.e. p(not getting a letter ‘D’), q = 1 - p

= 1 - 1/5

q = 4/5

Step 2: The formula for probability of success for a random variable X in a binomial distribution is given by

P(X = x) = (n!/(n-x)!\*x!) \* px \*q(n – x)

Step 3: Now substituting the values in the above formula we get

P(X = 5) = (50!/(50-5)!\*5!) \*(1/5)5 \* (4/5)(50 – 5)

= 50\*49\*48\*47\*46 \* (1/5)5 \* (4/5)45

5\*4\*3\*2\*1

P(X = 5) = 0.0295

Hence the probability = 0.0295