Exemplar Problem with Solution :

Q) Suppose an integer from 1 through 1000 is chosen at random, find the probability that the integer is a multiple of 2 or a multiple of 9.

Sol: We have integers 1,2, 3,…1000
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n(S) = 1000
Number of integers which are multiple of 2 = 500 Let the number of integers which are multiple of 9 be n.
nth term = 999 => 9 + (n -1)9 = 999
=> 9 + 9n – 9 = 999
=> n = 111
From 1 to 1000, the number of multiples of 9 is 111.
The multiple of 2 and 9 both are 18, 36,…, 990.
Let m be the number of terms in above series.
.'. mth term = 990
=> 18 + (m- 1)18 = 990
=> m = 55
Number of multiples of 2 or 9 = 500 +111-55 = 556 = n(E)