Assignment 5

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I. PROBLEM-CBSE-11TH EX:16 Q)2

Q) 4 cards are drawn from a well-shuffled deck of 52 cards. What is the probability of obtaining 3 diamonds and one spade?

II. SOLUTION

Let $X = 0$ denote the favourable outcome of 3 diamonds and one spade
No. of ways to choose 3 diamonds = $^{13}C_3$
No. of ways to choose 1 spade = $^{13}C_1$
Now, favourable outcome = $^{13}C_3 \times {}^{13}C_1$
Total outcomes = $^{52}C_4$

Now, probability of getting 3 diamonds and one spade is given by

$$Pr(X = 0) = \frac{^{13}C_3 \times {}^{13}C_1}{^{52}C_4} \qquad (1)$$

$$Pr(X = 0) = \frac{286}{20825} \qquad (2)$$

$$Pr(X = 0) = 0.0137 \qquad (3)$$

∴ probability of getting 3 diamonds and one spade is 0.0137