

Q. A die is thrown two times and the sum of the scores appearing on the die is observed to be a multiple of 4. Then the conditional probability that the score 4 has appeared at least once is:-

Soln:- Let A \rightarrow event in which the sum obtained is a multiple of 4.

B be the event in which score of 4 has appeared at least once \rightarrow

$$A = \{(1, 3), (2, 2), (3, 1), (2, 6), (3, 5), (4, 4), (5, 3), (6, 2), (6, 6)\}$$

$$B = \{(1, 4), (2, 4), (3, 4), (4, 4), (5, 4), (6, 4), (4, 1), (4, 2), (4, 3), (4, 5), (4, 6)\}$$

$$(A \cap B) = (4, 4)$$

$$n(A \cap B) = 1$$

required probability :- $P(B|A)$

$$= \frac{P(A \cap B)}{P(A)}$$

$$= \frac{1}{9} \text{ Ans.}$$