(10) 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 conclitional probability that the score 4 has appeared atleast once is:

Sol^n: Consider A and B events

A: score of 4 has appeared atleast once.

Outcomes are: $\{(1,4)(2,4)(3,4)(4,4)(5,4)(6,4)(4,1)(4,2)(4,3)(4,5)(4,6)\}$, $n(A) = 11$

$$P(A) = \frac{11}{36}$$

B: Sum obtained is a multiple of 4.

Outcomes are: $\{(1,3)(2,2)(3,1)(2,6)(3,5)(4,4)(5,3)(6,2)(6,6)$

$n(B) = 9$

$A \cap B = \{4,4\}$, $n(A \cap B) = 1$ $\quad P(B) = \frac{9}{36}$.

$$P(A \cap B) = \frac{1}{36}.$$

$$P(A/B) = \frac{P(A \cap B)}{P(B)} = \frac{1/36}{9/36} = \frac{1}{9}.$$

(11) The probability of a man hitting