

$$\text{Sol } n(S) = \frac{5!}{3! 2!} = 10 \quad \text{--- (24) ---}$$

$$\therefore S = \{aaabbb, aabbaa, aababb, abbbaa, ababaa, bbaaaa, \\ babbba, baabba, baaabb, abaabb\}$$

$$A = \{2 \text{ b's come together}\}$$

$$A = \{aaabbb, aabbaa, abbbaa, bbaaaa\}; P(A) = \frac{4}{10}$$

$$B = \{\text{the first letter is a}\}$$

$$B = \{aaabbb, aabbaa, aababb, abbbaa, ababaa, abaabb\}$$

$$P(B) = \frac{6}{10} = \frac{3}{5}$$

$$A \cap B = \{aaabbb, aabbaa, abbbaa\}$$

$$P(A \cap B) = \frac{3}{10}$$

$$\therefore P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{3/10}{3/5} = \frac{1}{2}$$

Note: If he wants that: prob. that the first letter is a knowing that the 2 b's come together

$$\Rightarrow P(B|A)$$

$$\therefore P(B|A) = \frac{P(A \cap B)}{P(A)} = \frac{3/10}{2/5} = \frac{3}{2} \cdot \frac{1}{2} = \frac{3}{4}$$

Q) Two 4's and five 3's are arranged to form 4-digits number. Find:-

- ① The prob. that Two 4's are Together when the 4-digits number is odd.
- ② The prob. that the 4-digits number is odd when the two 4's are together.

(H.W)

Ex(2) we have in a certain institute 20% of the students failed in a mathematical, 15% of them failed in a statistic and 5% of them failed in both of them.

If we have chosen one of them at random: Final.

- 1- If he was failing in stat. what is the prob. that he failed in math.
- 2- If he was failing in math, what is the prob. that he succeed in stat.
- 3- what is the prob. that he failed in math, or stat.
- 4- " " " " " " Succeed " " " "
- 5- If he was succeeding in stat. what is the prob. that he succeed in math.