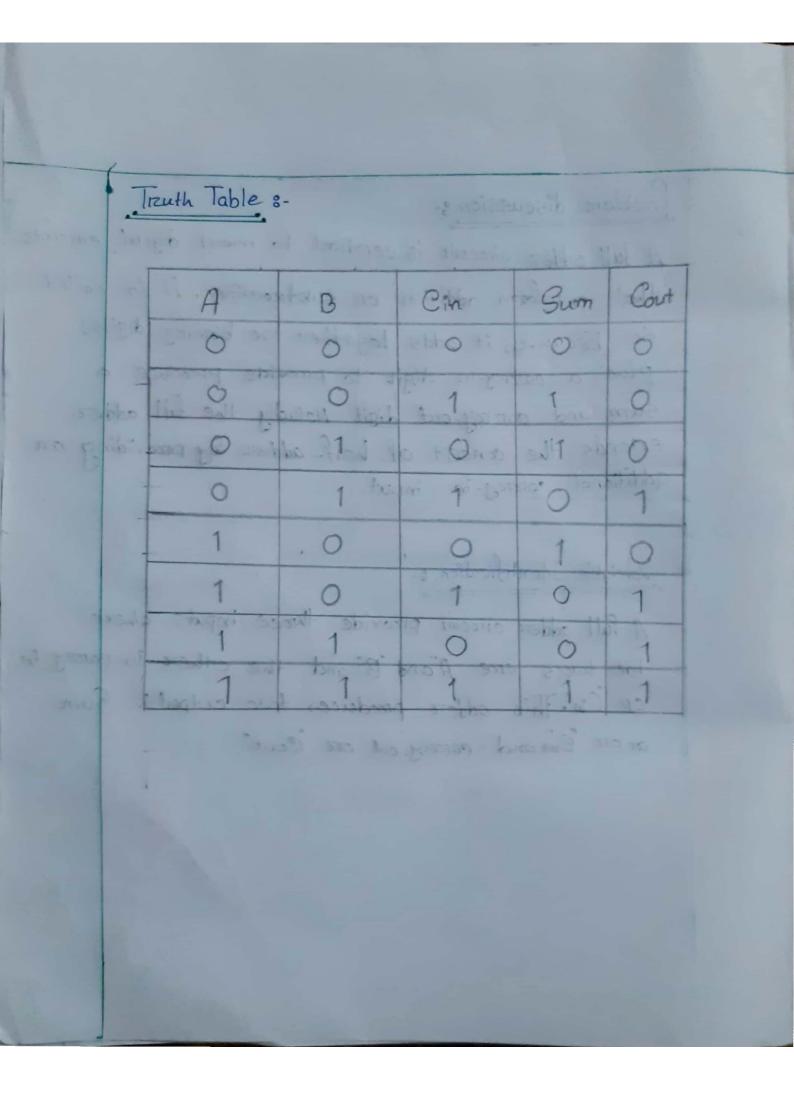
## Problem discussion :-

A full adder circuit is central to most digital circuits that percham addition or subtraction. It is called so because it adds together two binary digits, plus a carry-in digit to provide preoduce a sum and carrry-out digit. Actually the full adders extends the concept of half-adder by preoviding an additional carrry-in input.

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## Variable Identification :-

A full adder circuit provide three inputs where too twos are "A" and B" and the other is carry-in or Cin". This adder produces two outputs Sum aror "Swa and carrry-out or "Cout".



## Equation Simplification:

Herre, Sum = 
$$\overline{AB}Cin + \overline{AB}Cin + \overline{AB}Cin + \overline{AB}Cin$$
  
=  $\overline{AB}Cin + \overline{AB}Cin + \overline{AB}Cin + \overline{AB}Cin$   
=  $Cin (\overline{AB} + \overline{AB}) + \overline{Cin} (\overline{AB} + \overline{AB})$   
=  $Cin (\overline{AB}) + \overline{Cin} (\overline{AB})$   
=  $Cin (\overline{AB}) + \overline{Cin} (\overline{AB})$ 

= Cin (ADB)

