give me truth table of the following formula f = not(a and b and c) xor d)

Sources

Truth Table Generator - Online Boolean Algebra to Tables Calculator
dcode · 1

Truth Table Generator - Create Logical Truth Tables Instantly
truthtablemaker · 2

3.2: Truth Tables- Conjunctio
math.libretexts · 3

Answer

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a	b	c	d	a and b and c	not(a and b and c)	f = not(a and b and c) xor d
0	0	0	0	0	1	1
0	0	0	1	0	1	0
0	0	1	0	0	1	1
0	0	1	1	0	1	0
0	1	0	0	0	1	1
0	1	0	1	0	1	0
0	1	1	0	0	1	1
0	1	1	1	0	1	0
1	0	0	0	0	1	1
1	0	0	1	0	1	0
1	0	1	0	0	1	1
1	0	1	1	0	1	0
1	1	0	0	0	1	1
1	1	0	1	0	1	0
1	1	1	0	1	0	0
1	1	1	1	1	0	1

Let's break down the evaluation process:

1. First, we evaluate "a and b and c". This is true only when all three inputs are 1.
2. Then, we negate this result to get "not(a and b and c)".
3. Finally, we XOR this result with d to get the final output f.

The XOR operation returns true when the inputs are different. So, f is true when either "not(a and b and c)" is true and d is false, or when "not(a and b and c)" is false and d is true [1] [2].

This truth table shows all possible combinations of inputs and the corresponding outputs for the given formula.

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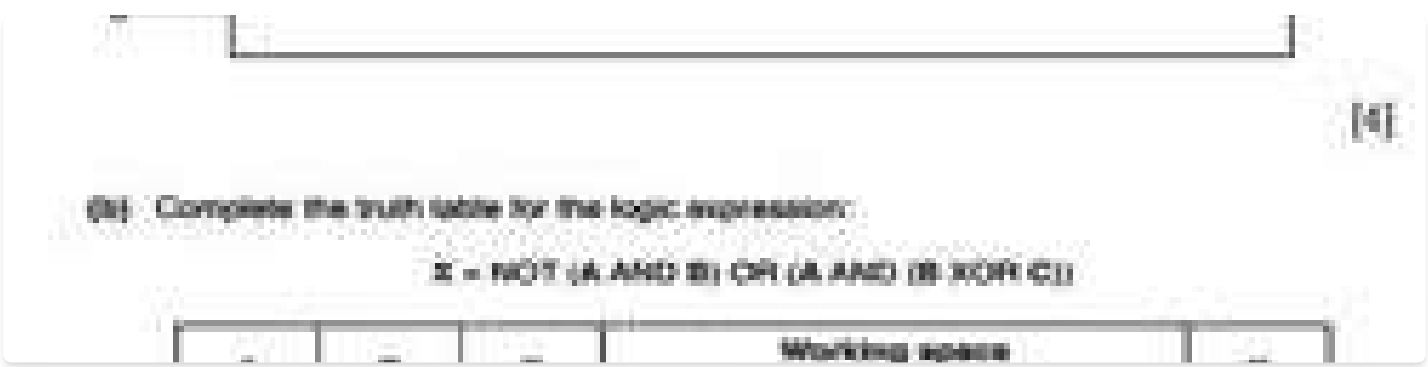

ut A	Input B	Out
0	0	0
0	1	1
1	0	1
1	1	0

A	B	C	A'	B'	C'	A'BC'	A'BC	AB'C	ABC	A'BC+AB'C +ABC
0	0	0	1	1	1	0	0	0	0	0
0	0	1	1	1	0	0	0	0	0	0