

HW5.2. Translating a Truth Table to a Boolean Circuit

Feel free to check out the [guide](#) that we have prepared to help you in this problem.

Consider the following truth table:

A	B	C	Q1.1	Q1.2	Q1.3	Q1.4
0	0	0	1	1	0	0
0	0	1	1	0	1	0
0	1	0	0	0	0	1
0	1	1	0	0	1	1
1	0	0	1	1	1	0
1	0	1	1	0	0	0
1	1	0	0	0	1	0
1	1	1	0	0	0	1

In this table, a 1 or 0 indicates an output which must be set, given the inputs A, B, and C.

Write boolean expressions for **Q1.1**, **Q1.2**, **Q1.3**, **Q1.4** in terms of **A**, **B**, **C**. Partial credit will be awarded for answers not in simplest terms; for full credit, you must submit the simplest possible answer (i.e. the answer which requires the fewest operations). Note: The answer checker will only accept answers which are sequences of "A", "B", "C", "1", "0", and characters among "()*+!". Use **!** for NOT, ***** for AND, **+** for OR, and **()** for grouping and precedence. Spaces are allowed, but will be ignored.

An example answer looks like this: **(!A*!B)+(!C+!D)**

This question will be scored as follows: First, your solution is compared against the reference solution on all valid inputs. If there is a mismatch, the solution is scored as 0. Otherwise, your score is computed as $(r+1)/(s+1)$, where **r** is the number of boolean operators in our reference solution, and **s** is the number of boolean operators in the student submission. It is possible to get more than 100% on this question if your solution uses less boolean operators than the staff solution.

Q1.1:

?

Q1.2:

?

Q1.3:

?

Q1.4:

?

Homework 5

Assessment overview

Total points: 10/100

Score: 10%

Question

Value: 15

History:

Awarded points: 0/15

Report an error in this question

Previous question

Next question

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