CS 1511 Homework 10

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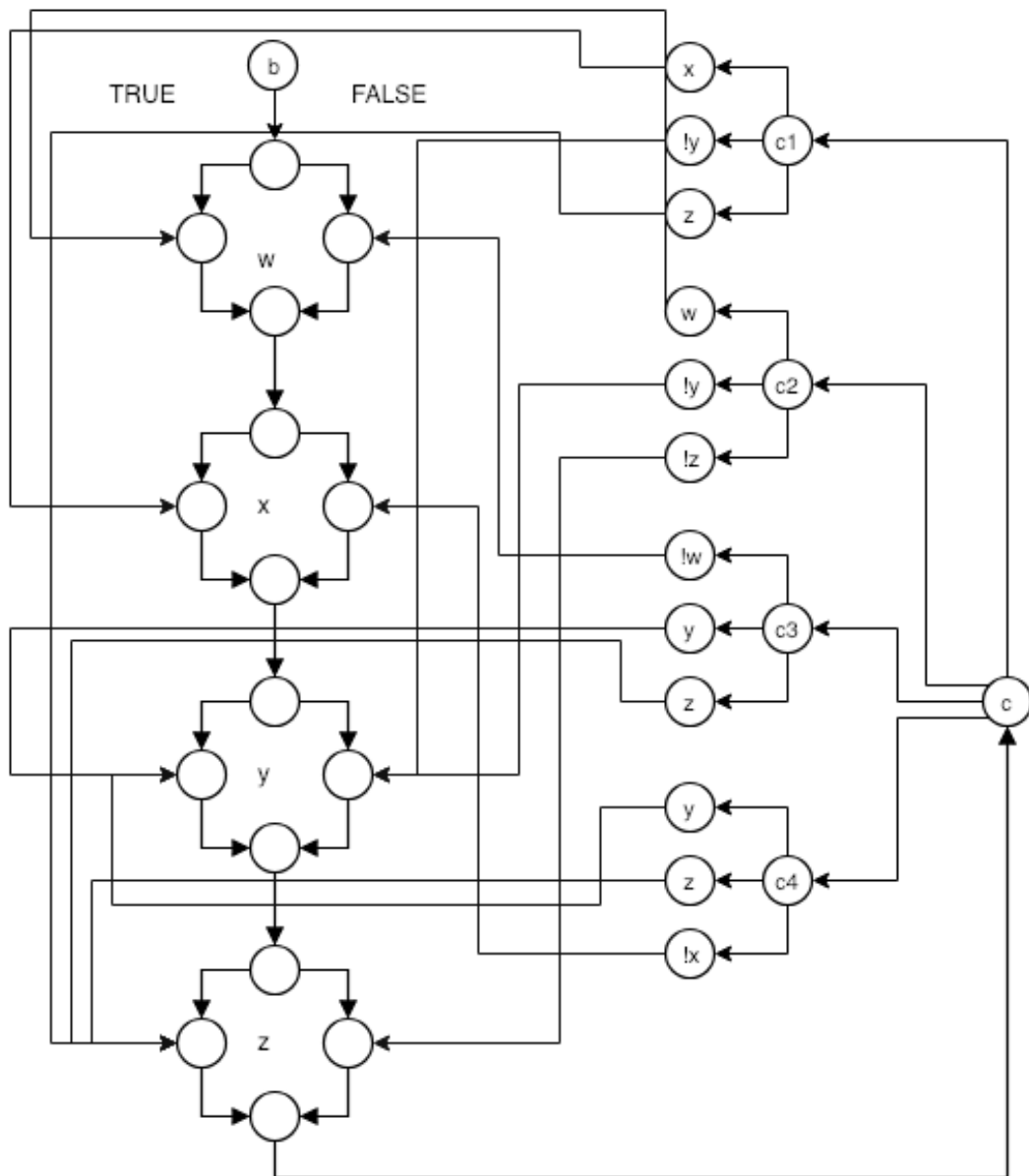
18. a

∃	∀	∃	∀
	x	!y	z
w		!y	!z
!w		y	z
	!x	y	z

18. b

Based on this reduction and diagram, player 2 would have the winning strategy if you could pick variables to satisfy the QBF.

In the table, we see that each row needs to evaluate to true for the full expression to true.

Say w = T, then y must be T to make the third row work. Then, the first row will not be satisfied because x and z could be anything, which would make it false.

Say w = F. Then y must be True. The same problem applies, the first row will be false since x and z could be anything.

w can either be T or F, and since both options lead to the expression being false, there is not a way to make this formula true. Therefore, this problem is not in TBQF, so by the reduction we created Player 2 would have the winning strategy.