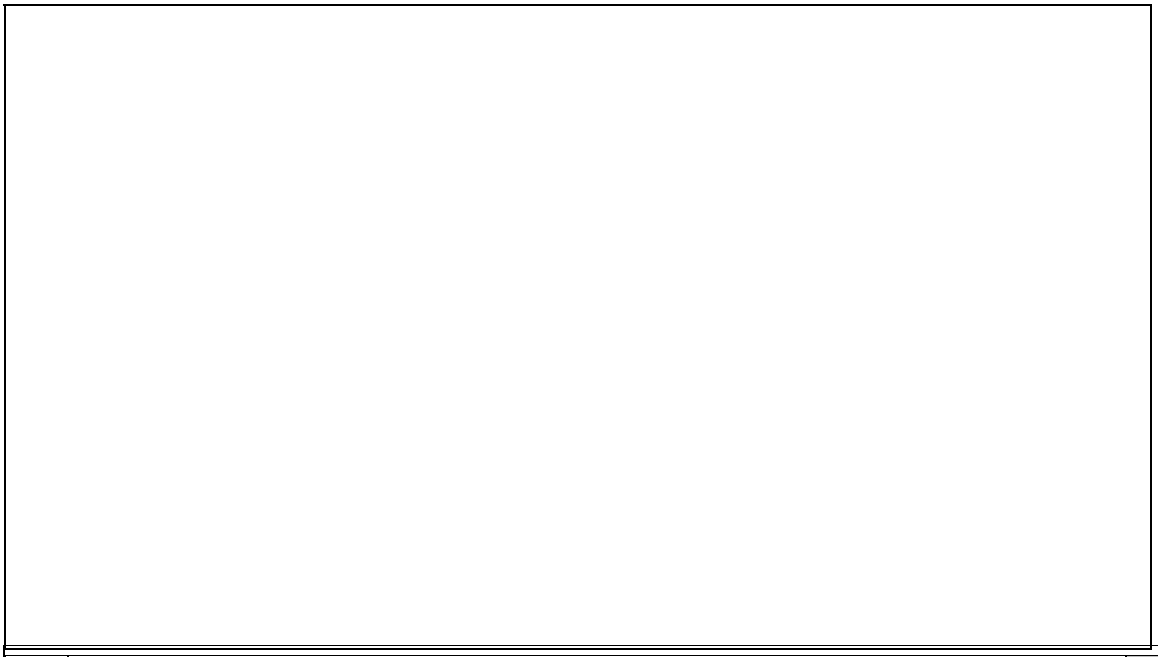
DEMORGAN'S LAW



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1. CHECK YOUR UNDERSTANDING (1/1 point)

Which of the following is functionally equivalent to a NAND gate? [Check all that apply]

- [x] An AND gate followed by a NOT gate. ✔
- [x] A NAND gate followed by two back-to-back NOT gates. ✔
- [x] A NOR gate with both the inputs and output inverted. ✔
- [ ] A NOR gate with just the inputs inverted.

EXPLANATION

The first is equivalent since a NAND by definition is the inverse of AND.

The second is equivalent since the two NOTs cancel each other out.

The third is equivalent since DeMorgan's Law equates a NAND with an OR with its inputs inverted, and a NOR with its output inverted is the same as an OR.

The fourth is not equivalent since it is like an OR with both inputs and output inverted, which is equivalent to AND, not NAND.

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