INTERVIEW QUESTION

Question 2.1: Sketch a schematic for the two input XOR function using only NAND gate. How few can you use?

A	B	ABB	minterm
0	0	0	AB
0	1	1	AB
4	0	1	AB
1	1	0	AB

Sum-of products:

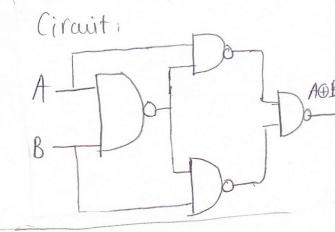
$$=\overline{\overline{A}B}+\overline{A}\overline{\overline{B}}$$
 (Involution)

$$= \frac{\overline{(A+B)(\overline{A}+B)}}{(\overline{A}+B)(\overline{A}+B)} (De Morgan)$$

$$= \frac{(A+B)(A+B)}{(A+\overline{B})\overline{A} + (A+\overline{B})B}$$
 (Distributivity)

$$= \frac{(A+B)A + (A+B)B}{A\overline{A} + A\overline{B} + AB + B\overline{B}}$$
 (Distributivity)

$$= \frac{AA + AB + AB + BB}{O + \overline{AB} + \overline{AB} + O}$$
 (Complements)



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