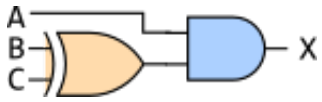

Figure 1: Circuit diagram for question 1

Quiz 3

Wed Oct 10

You have up to 20 minutes. You may not use text book or notes.

1. Write the Boolean expression implemented by the circuit diagram shown in Figure 1.

   _____

2. For any Boolean values X and Y, can $(X \cdot Y)'$ be rewritten as $X' \cdot Y'$?
   yes / no

   Justify your answer by creating a truth table to show the results of the two expressions for all possible values of X and Y.

3. In algebra, an operator is **commutative** if the order of its operands can be switched. For example, standard addition is commutative because $(A + B) = (B + A)$ for all numbers A and B. Division is **not** commutative. For example, $(4 \div 5) \neq (5 \div 4)$ or in decimal notation, $0.8 \neq 1.25$.

   Which of the Boolean operators (AND, OR, XOR) are commutative? (Choose none, one, two, or all of them.)