

1º Livro Lógica

3) a) $A + AB = A$

$$\begin{aligned}
 &A + AB \\
 &A(1 + B) \\
 &A \cdot 1 \\
 &A
 \end{aligned}$$

b) $A(A+B) = A$

$$\begin{aligned}
 &A(1+B) \\
 &A + AB \\
 &A(1+B) \\
 &A
 \end{aligned}$$

$p \leftarrow q \wedge (q \vee p)$

c) $A + \bar{A}B = (A+B)$

d) $A(\bar{A} + B) = AB$

$$\begin{aligned}
 &A\bar{A} + B \\
 &A(0 + B) \\
 &A \cdot B = AB
 \end{aligned}$$

Substituindo B por $A+B$
 $A + B + A = A+B$

União disjuntiva

e) $AB + A\bar{B} = A$

$$\begin{aligned}
 &A(B + \bar{B}) \\
 &A \cdot 1 \\
 &A
 \end{aligned}$$

f) $(A+B)(A+\bar{B}) = A$

$$\begin{aligned}
 &A.A + A.\bar{B} + B.A + B.\bar{B} \\
 &A + A\bar{B} + BA + 0 \\
 &A + A\bar{B} + BA \\
 &A(\bar{B} + B + 1) \\
 &A(1+1) \\
 &A \cdot 1 \\
 &A
 \end{aligned}$$

$p \oplus \bar{q} = p \oplus q$

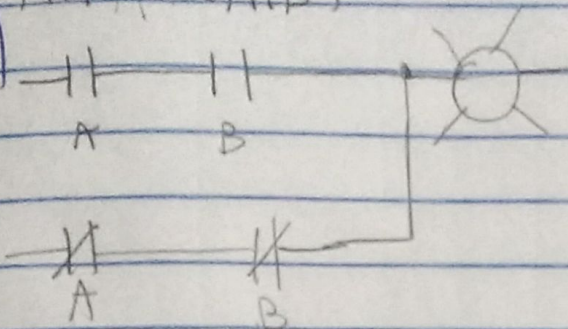
g) $A \oplus (B \oplus C) = (A \oplus B) \oplus C$

h) $AB + AC + BC = AB + AC$

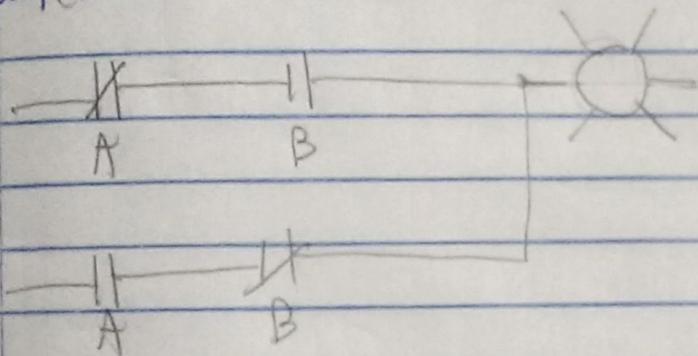
$$\begin{aligned}
 &AB + AC + BC(A + \bar{A}) \\
 &AB + AC + ABC + \bar{A}BC \\
 &AB(1+C) + AC(1+B) \\
 &AB + AC + ABC + ABC \\
 &AB + AC
 \end{aligned}$$

$$A.B + (\bar{A}.B)$$

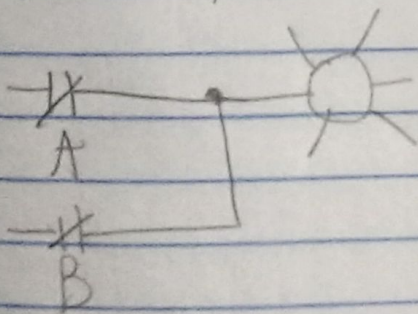
b) a)



$$b) (\bar{A}.B) + (B.A)$$



$$c) \bar{A} + \bar{B}$$



$$d) A.B$$

