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Digital Circuits LA 3

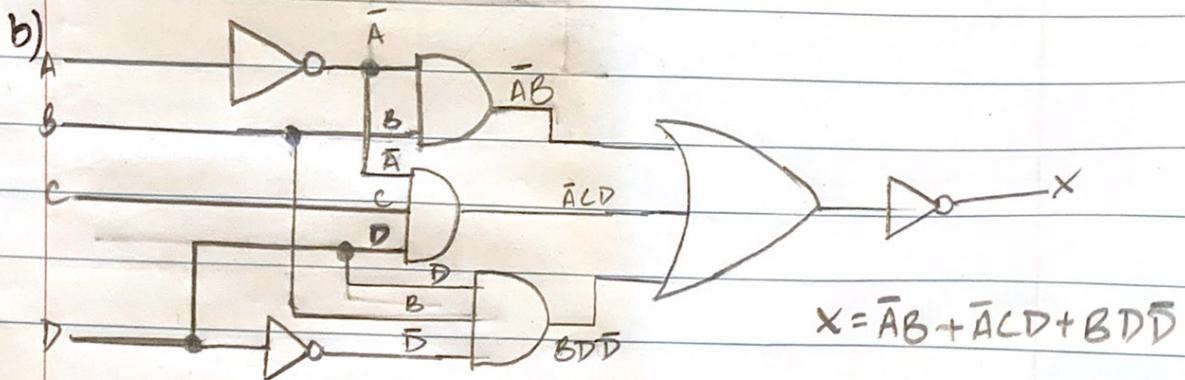Sept. 17, 2020

2. Write the output expression for each circuit:

a)

$x = \bar{A} + \bar{A}B + AC$

$x = \bar{A} + C$

b)
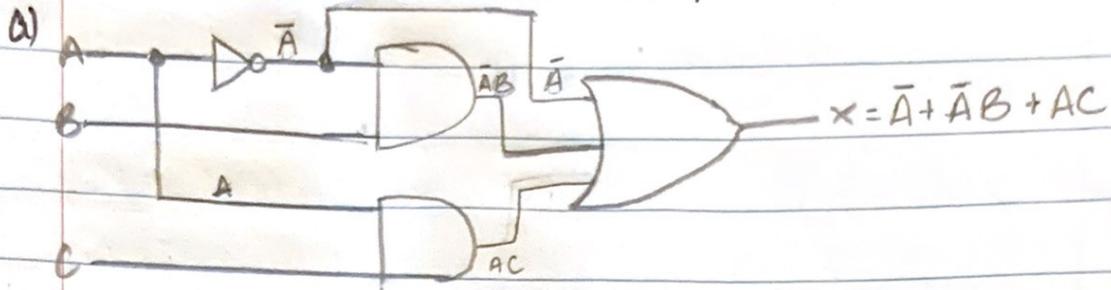
$x = \bar{A}B + \bar{A}CD + BD\bar{D}$

$$x = \overline{(\bar{A}B + \bar{A}CD + BD\bar{D})}$$
$$= (\overline{\bar{A}B})(\overline{\bar{A}CD})(\overline{BD\bar{D}})$$
$$= (A + \bar{B})(A + \bar{C} + \bar{D})(\bar{B} + \bar{D} + D)$$
$$= (A + \bar{B})(A + \bar{C} + \bar{D})(\bar{B} + 1)$$
$$= (A + \bar{B})(A + \bar{C} + \bar{D})$$
$$x = A + \bar{B}(\bar{C} + \bar{D})$$

*$\bar{D} + D = 1$

*$1 + \bar{B} = 1$