

1. Which of the following formulas are equivalent to the given formula?

$$[(x + y).(y + z).z]$$

- (a) $z.(x + y)$
- (b) $(x + y).y.z$
- (c) $x.y + y.y + y.z + z.x$
- (d) $(y + x.z).z$

Answer: (a), (d)

2. Let x and y be the minimum number of NAND gates to build an AND gate and an OR gate respectively. Evaluate $x + y$.

- (a) 2
- (b) 3
- (c) 4
- (d) 5

Answer: (d)

3. Given two 8-bit numbers $a = (47)_{10}$ and $b = (69)_{10}$ where $(a)_b$ represents the number a in base b , compute the value of $a - b$ and represent it using the two's complement notation.

- (a) 11101010
- (b) 11101011
- (c) 00010101
- (d) 00010100

Answer: (a)