

Assignment 1

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Download the codes from

[https://github.com/KUSUMAPRIYAPULAVARTY/
FPGAlab/tree/Assgnt1](https://github.com/KUSUMAPRIYAPULAVARTY/FPGAlab/tree/Assgnt1)

1 QUESTION:6(A)

Verify the following using boolean laws.

$$X + Y' = X.Y + X.Y' + X'.Y' \quad (1)$$

2 BOOLEAN LAWS USED

- Inverse Law:

$$A + A' = 1 \quad (2)$$

- Distributive Law:

$$A + B.C = (A + B).(A + C) \quad (3)$$

3 SOLUTION

$$\text{RHS} = X.Y + X.Y' + X'.Y' \quad (4)$$

$$= X.(Y + Y') + X'.Y' \quad (5)$$

$$= X + X'.Y' \quad \{\text{From (2)}\} \quad (6)$$

$$= (X + X').(X + Y') \quad \{\text{From (3)}\} \quad (7)$$

$$= X + Y' \quad \{\text{From (2)}\} \quad (8)$$

$$= \text{LHS}$$