

$$1. A + 0 = A$$

$$\underline{0} + \underline{0} = \underline{0}$$

$$\underline{1} + \underline{0} = \underline{1}$$

$$2. A + 1 = 1$$

$$\underline{0} + \underline{1} = \underline{1}$$

$$\underline{1} + \underline{1} = \underline{1}$$

$$3. A \cdot 0 = 0$$

$$\underline{1} \cdot \underline{0} = \underline{0}$$

$$\underline{0} \cdot \underline{0} = \underline{0}$$

$$4. A \cdot 1 = A$$

$$\underline{0} \cdot \underline{1} = \underline{0}$$

$$\underline{1} \cdot \underline{1} = \underline{1}$$

$$5. A + A = A$$

$$\underline{0} + \underline{0} = \underline{0}$$

$$\underline{1} + \underline{1} = \underline{1}$$

$$6. A + \bar{A} = 1$$

$$\underline{0} + \underline{1} = \underline{1}$$

$$\underline{1} + \underline{0} = \underline{1}$$

$$7. A \cdot A = A$$

$$\underline{0} \cdot \underline{0} = \underline{0}$$

$$\underline{1} \cdot \underline{1} = \underline{1}$$

$$8. A \cdot \bar{A} = 0$$

$$\underline{0} \cdot \underline{1} = \underline{0}$$

$$\underline{1} \cdot \underline{0} = \underline{0}$$

$$9. A = \bar{\bar{A}}$$

$$\underline{0} = \bar{\bar{0}} = \bar{1} = \underline{0}$$

$$\underline{1} = \bar{\bar{1}} = \bar{0} = \underline{1}$$

$$10. \begin{matrix} A=0 \\ B=1 \end{matrix}$$

$$A + AB = A$$

$$0 + 0 \cdot 1 = 0$$

$$0 + 0 = 0$$

$$\underline{0} = \underline{0}$$

$$11. A + \bar{A}B = A + B$$

$$\boxed{A=0, B=1}$$

$$0 + 1 \cdot 1 = 0 + 1$$

$$\rightarrow 0 + 1 = 1$$

$$\underline{1} = \underline{1}$$

$$12. (A+B)(A+C) = A+BC$$

$$(1+1)(1+0) = 1+1 \cdot 0$$

$$1 \cdot 1 = 1+0$$

$$\underline{1} = \underline{1}$$

$$\boxed{A=1}$$

$$\boxed{B=1}$$

$$\boxed{C=0}$$