

$$1) \quad \overline{\overline{x}} + \overline{\overline{xy}} = \overline{x} + \overline{xy} = (\overline{x} + x) + y = 1 + y = \overline{y} = x$$

$$2) \quad A \cdot B + A \cdot \overline{B} \cdot C + \overline{A} \cdot C + A \cdot \overline{C} =$$

$$= AB + A\overline{B}(C + \overline{C}) + A\overline{C} =$$

$$= AB + A\overline{B} + A\overline{C} = A(B + \overline{B} + \overline{C}) = A$$

$$3) \quad (\overline{x} + \overline{y} + xy) \rightarrow \overline{xy} =$$

$$= \overline{x + y} + \overline{xy} =$$

$$= \overline{x} \cdot \overline{y} + \overline{xy} =$$

$$= \overline{xy} \cdot (\overline{x} + \overline{y}) + \overline{xy} = \overline{xy} = \overline{xy}$$

$$4) \quad \overline{A \rightarrow B} + B(\overline{B} + A) = \overline{A + B} + B \cdot \overline{A} =$$

$$= \overline{A \cdot B} + \overline{B} + \overline{A}B = \overline{A}B + B(1 + \overline{A}) = \overline{A}B + B =$$

$$= A + B$$