

$$\overline{x}y (\overline{x}+y) (y+\overline{y})$$

$$= \overline{x}y (\overline{x}+y) \cdot 1 \quad (\text{Inverse Law})$$

$$= \overline{x}y (\overline{x}+y) \quad (\text{Identity Law})$$

$$= \overline{x}y \overline{x} + \overline{x}y y \quad (\text{Distributive Law})$$

$$= \overline{x} + \overline{y} \overline{x} + \overline{x}y y \quad (\text{De Morgan's Law})$$

$$= (\overline{x} + \overline{y} \overline{x}) + (\overline{x} + \overline{y} y) \quad (\text{De Morgan's Law})$$

$$= \overline{x} + \overline{x} \quad (\text{Redundancy Law})$$

$$= \overline{x} \quad (\text{Idempotent Law})$$