a) $S = x \cdot \overline{x + \bar{y}}$

$S = x \cdot \bar{x} \cdot y$

$S = 0 \cdot y$

$S = 0$

b) $(x+y)+(y \cdot \bar{x})$

$S = y(x + 1 + \bar{x})$

$S = y(1 + \bar{x})$

$S = y \cdot 1$

$S = y$

c) $S = (\overline{x \cdot y}) \cdot (\bar{y} + x)$

$S = (\bar{x} + \bar{y}) \cdot (\bar{y} + x)$

$S = \bar{y}(\bar{x} + x)$

$S = \bar{y} \cdot 1$

$S = \bar{y}$

d) $S = (\overline{\bar{x} \cdot \bar{y}}) + (\bar{y} + \bar{x})$

$S = (x + y) + (\bar{y} + \bar{x})$

$S = (\bar{y} + y) + (x + \bar{x})$

$S = 1 + 1$

$S = 1$

e) $S = (x+y) \cdot (\bar{x} + \bar{y})$

$S = \overline{(x+y) + (\bar{x} + \bar{y})}$

$S = \overline{(x + \bar{x}) + (y + \bar{y})}$

$S = (\bar{x} + x) \cdot (\bar{y} + y)$

$S = 1 \cdot 1$

$S = 1$