Zadaća 1.

Zad 1.

a) $(x \wedge \neg y) \vee (\neg x \wedge \neg y) \vee (\neg x \wedge y)$

$= x\bar{y} + \bar{x}\bar{y} + \bar{x}y = \bar{y}\underbrace{(x+\bar{x})}_{=1} + \bar{x}y = \bar{y} + \bar{x}y = \underline{\underline{\bar{y} + \bar{x}}}$

b) $\neg(\neg x \wedge y \wedge z) \wedge \neg(x \wedge y \wedge \neg z) \wedge (x \wedge \neg y \wedge z)$

$= \overline{\bar{x}yz}\ \overline{xy\bar{z}}\ x\bar{y}z \overset{\text{DM.}}{=} \overline{\bar{x} + \bar{y} + \bar{z}}\ \overline{xy\bar{z}}\ x\bar{y}z \quad \bar{\bar{x}} = x$

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

$= (x + \bar{y} + \bar{z})x\bar{y}zx + (x + \bar{y} + \bar{z})x\bar{y}zy + (x + \bar{y} + \bar{z})x\bar{y}z\bar{z}$

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

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

$= (\bar{x} + \bar{y} + z)x\bar{y}z + (\bar{x} + y + z)xy\bar{z} + (\bar{x} + \bar{y} + z)x\bar{y}\underbrace{z\bar{z}}_{=0}$

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

$= (\bar{x} + \bar{y} + z)x\bar{y}z = \underbrace{x\bar{x}yz}_{=0} + \underbrace{xy\bar{y}z}_{=0} + \underbrace{x\bar{y}z}_{zz=z} = \underline{\underline{x\bar{y}z}}$