

Date. 28.10

Aufgabe 3. (\neg and \vee or)

(a) i)

$$(x \vee (y \text{ and } (\neg (y \vee z))))$$

or

$$\begin{array}{c} / \backslash \\ x \quad \text{and} \\ / \quad \backslash \\ y \quad \neg \end{array}$$

i) $x = \text{True}, y = \text{False}, z = \text{True}$

$$\begin{aligned} & (x \vee (y \text{ and } \neg (y \vee z))) \\ &= (\text{T} \vee (\text{F} \wedge \neg (\text{F} \vee \text{T}))) \\ &= \text{T} \end{aligned}$$

ii) $x = \text{False}, y = \text{False}, z = \text{False}$

$$\begin{aligned} & (x \vee (y \text{ and } \neg (y \vee z))) \\ &= (\text{F} \vee (\text{F} \wedge \neg (\text{F} \vee \text{F}))) \\ &= \text{F} \end{aligned}$$

(b)

$$((x < y) \text{ or } (y \geq 10) \text{ and } (\neg z))$$

or

$$\begin{array}{c} / \backslash \\ < \quad \text{and} \\ / \backslash \quad / \backslash \\ x \quad y \quad \geq \quad \neg \end{array}$$

i) $x = 20, y = 15, z = \text{T}$

$$\begin{aligned} & ((x < y) \text{ or } (y \geq 10) \text{ and } (\neg z)) \\ &= (\text{F} \vee (\text{T} \wedge \text{F})) \\ &= \text{F} \end{aligned}$$

= F

ii) $x = 3, y = 10, z = \text{F}$

$$\begin{aligned} & ((x < y) \text{ or } (y \geq 10) \text{ and } (\neg z)) \\ &= (\text{T} \vee (\text{T} \wedge \text{T})) \\ &= \text{T} \end{aligned}$$