

## Grondwater

$$5.1 \quad 100.000 \text{ ha} = 10^5 \text{ ha} = 10^5 * 10^4 \text{ m}^2 \text{ ha}^{-1} = 10^9 \text{ m}^2$$

$$500 \text{ miljoen m}^3 = \frac{0,5 * 10^9 \text{ m}^3}{10^9 \text{ m}^2} = 0,5 \text{ m ontbrekking}$$

$$\text{Opbrengstcoëfficiënt} = \frac{0,5}{3} = 0,1\bar{6}$$

$$5.2 \quad \text{Bergingcoëfficiënt} = \frac{5 \text{ cm}}{25 \text{ cm}} = 0,2$$

$$\text{Bergingcoëfficiënt} \geq \text{Opbrengstcoëfficiënt}$$

$$5.3 \quad K = k \frac{\rho g}{\mu}; \quad k = 0,5 \text{ darcy} = 0,5 * 9,87 * 10^{-9} \text{ cm}^2 = 4,935 * 10^{-13} \text{ m}^2$$

$$\left. \begin{array}{l} 5^\circ\text{C} \Rightarrow K = 3,185 * 10^{-6} \text{ ms}^{-1} = 0,275 \text{ m dag}^{-1} \\ 25^\circ\text{C} \Rightarrow K = 4,785 * 10^{-6} \text{ ms}^{-1} = 0,413 \text{ m dag}^{-1} \end{array} \right\} \Rightarrow$$

$$K_{25^\circ\text{C}} = 1,5 * K_{5^\circ\text{C}}$$

$$5.4 \quad v = -K.i \quad K = 5 \text{ m dag}^{-1} \quad i = \frac{1 \text{ m}}{1000 \text{ m}} = 10^{-3}$$

$$v = 5 * 10^{-3} \text{ m dag}^{-1}$$

$$v_e = \frac{5 * 10^{-3}}{0,4} = 1,25 * 10^{-2} \text{ m dag}^{-1} = 4,5625 \text{ m jaar}^{-1}$$

$$\Delta t = \frac{\Delta x}{v_e} = \frac{456 \text{ m}}{4,5625 \text{ m jaar}^{-1}} = 100 \text{ jaar} \Rightarrow$$

Jaar 2050