1. Dupuit

For steady state 1D flow with recharge rate R_I

$$\frac{2R_I}{K_H} + \frac{\partial^2 h^2}{\partial x^2} = 0 \tag{1}$$

Integrating twice and using the boundary conditions $h = h_0$ at $x = 0$ and $h = h_2$ at $x = x_2$ we get

$$h^2 = \frac{-R_I x^2}{K_h} + \left[\frac{h_2^2 - h_0^2}{x_2} + \frac{R_I x_2}{K_h}\right] x + h_0^2 \tag{2}$$

With this equation we can calculate the height of the water table (h) at any point between $x = 0$ and $x = x2$.