1. Two ends of a strip of land 3 km long are held at heads 40m and 50m respectively. The elevation of top of the strip is 60m and the soil is 60m thick with $K = 1m/d$. Divide the strip into 3 cells each of length 1km. See figure. Suppose that this strip receives an infiltration of $q$ (in mm/day).

(a) Compute $h_1, h_2$ and $h_3$ in terms of $q$. Make the thick aquifer assumption with thickness 60m.
(b) For what rate $q$ will the water table in the strip reach the top?
(c) Can this problem be done analytically? In other words, can $h$ be computed as a function of $x$? If so, just state the equations that you will use.