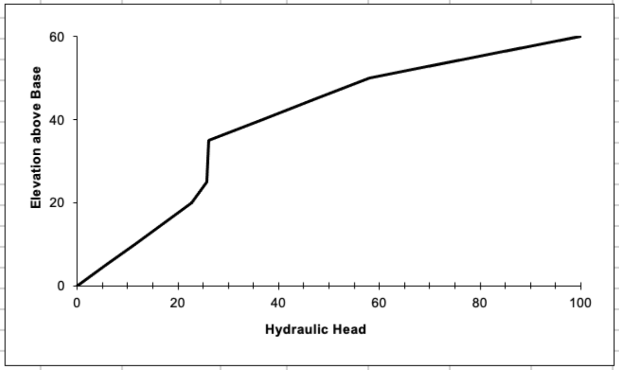
Direct solution for flux

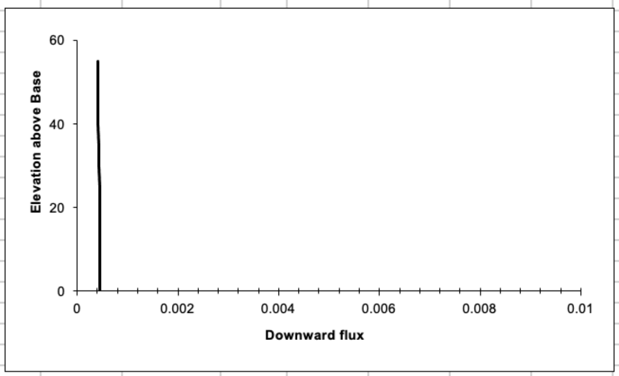
	K	num cells
zone 1	0.0004	4.5
zone 2	0.01	4
zone 3	0.0001	3.5
Keq	0.00025723	
q	0.00042872	

z	K zone cell	K cell	H	q	zone 1	zone 2	zone 3
60	3	0.0001	100		0	0	1
55	3	0.0001	79.0198078	0.0004196	0	0	1
50	3	0.0001	58.0346807	0.0004197	0	0	1
45	2	0.01	47.4310508	0.00041995	0	1	0
40	3	0.0001	36.8201141	0.00042024	0	0	1
35	2	0.01	26.2007502	0.00042057	0	1	0
30	2	0.01	25.9820622	0.00043738	0	1	0
25	2	0.01	25.7550395	0.00045405	0	1	0
20	1	0.0004	22.7963451	0.00045518	1	0	0
15	1	0.0004	17.1009786	0.00045563	1	0	0
10	1	0.0004	11.4018923	0.00045593	1	0	0
5	1	0.0004	5.70094617	0.00045608	1	0	0
0	1	0.0004	0	0.00045608	1	0	0

Map of node and cell numbers

	node	cell	
1	-		1
2	-		2
3	-		3
4	-		4
5	-		5
6	-		6
7	-		7
8	-		8
9	-		9
10	-		10
11	-		11
12	-		12
13	-		13





The Challenge:

Create a 1D, vertical steady state model with constant head top and bottom boundaries.

Show, based on the flux with depth, that the model is steady state.
Repeat this for a homogeneous and for a heterogeneous column.

Show that the steady state flux agrees with the direct calculation based on the harmonic mean average K.

Show the steady state head profile for a column with approximately equal-thickness layers with different K values.
Use this profile to explain why the equivalent hydraulic conductivity, Keq, is closer to the lower of the K values.