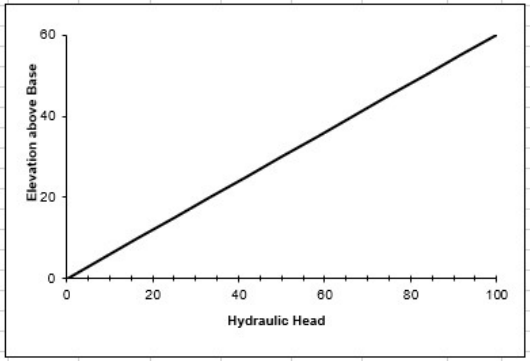
Direct solution for flux

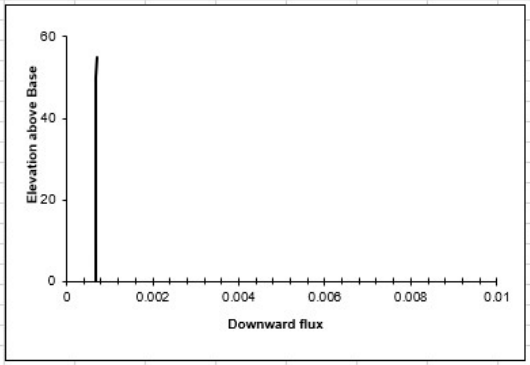
	K	num cells
zone 1	0.0004	12
zone 2	0.01	0
zone 3	0.0001	0
Keq	0.0004	
q	0.000667	

z	K zone cell	K cell	H	q	zone 1	zone 2	zone 3
60	1	4E-04	100		1	0	0
55	1	4E-04	91.6625	0.00067	1	0	0
50	1	4E-04	83.3256	0.00067	1	0	0
45	1	4E-04	74.9895	0.00067	1	0	0
40	1	4E-04	66.6542	0.00067	1	0	0
35	1	4E-04	58.3199	0.00067	1	0	0
30	1	4E-04	49.9866	0.00067	1	0	0
25	1	4E-04	41.6542	0.00067	1	0	0
20	1	4E-04	33.3225	0.00067	1	0	0
15	1	4E-04	24.9915	0.00067	1	0	0
10	1	4E-04	16.6608	0.00067	1	0	0
5	1	4E-04	8.33042	0.00067	1	0	0
0	1	4E-04	0	0.00067	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.