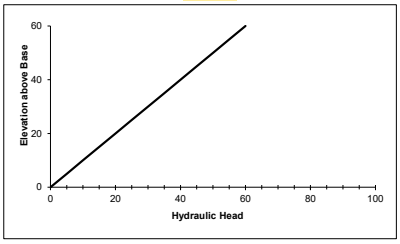
Direct solution for flux

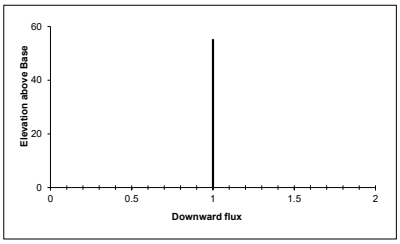
	K	num cells
zone 1	1	12
zone 2	1	0
zone 3	1	0
Keq	1	
q	1	

z	K zone cell	K cell	H	q	zone 1	zone 2	zone 3
60	1	1	60		1	0	0
55	1	1	55	1	1	0	0
50	1	1	50	1	1	0	0
45	1	1	45	1	1	0	0
40	1	1	40	1	1	0	0
35	1	1	35	1	1	0	0
30	1	1	30	1	1	0	0
25	1	1	25	1	1	0	0
20	1	1	20	1	1	0	0
15	1	1	15	1	1	0	0
10	1	1	10	1	1	0	0
5	1	1	5	1	1	0	0
0	1	1	0	1	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.