TSM 352 HOMEWORK ASSIGNMENT 03

**Due Monday, February 16th at 11:59 pm**

1) Determine the effective lateral hydraulic conductivity of the soil shown below. Determine the flow rate through the system if the head difference between upstream and downstream (12 m apart) is 2.5 cm.

2) In the sketch below H1 = 106 cm, H2 = 0 cm, L1 = 60 cm, L2=40 cm, K1 = 20 cm/hr, K2 = 8 cm/hr. Find Q. Plot (to scale) H vs z .



1. Determine the vertical seepage rate in the layered system below. What is the head loss across the 6 ft layer?



1. A soil profile consist of a soil that has the following soil water retention

 Characteristic.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Water Content** **(cm3/cm3)** | **Suction****(cm)** |  | **Water Content** **(cm3/cm3)** | **Suction****(cm)** |
| 0.41 | 0 |  | 0.29 | 47 |
| 0.40  | 3 |  | 0.28 | 53 |
| 0.39 | 6 |  | 0.27 | 58 |
| 0.38 | 10 |  | 0.26 | 64 |
| 0.37 | 14 |  | 0.25 | 69 |
| 0.36 | 18 |  | 0.24 | 78 |
| 0.35 | 22 |  | 0.23 | 90 |
| 0.34 | 26 |  | 0.22 | 106 |
| 0.33 | 30 |  | 0.21 | 120 |
| 0.32 | 34 |  | 0.20  | 134 |
| 0.31 | 40 |  | 0.19 | 151 |
| 0.30  | 43 |  | 0.18 | 168 |

Plot a graph of depth against soil water content when the water table is

1. 40 cm below the soil surface
2. 90 cm below the soil surface