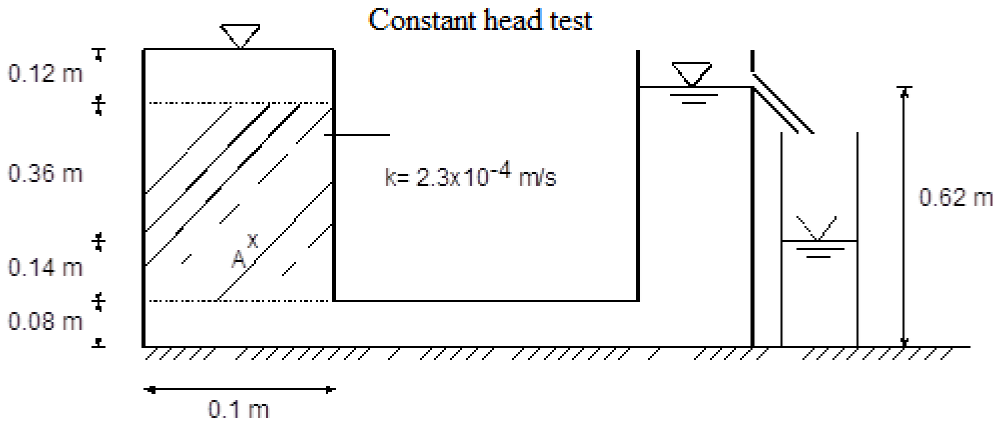
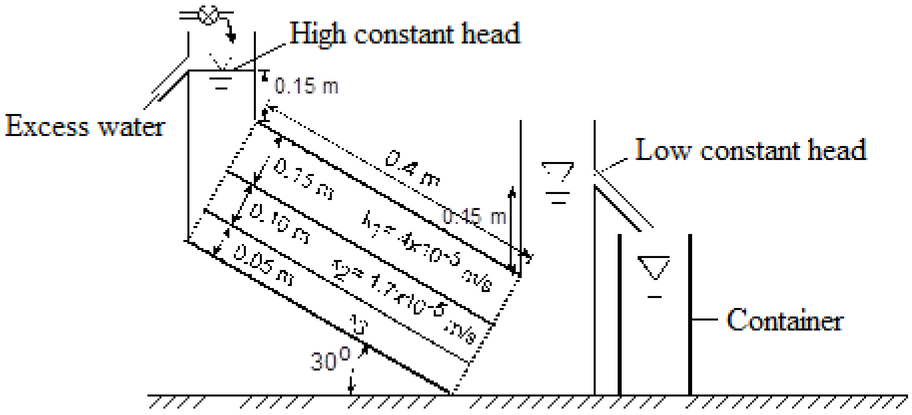
PERMEABİLİTY

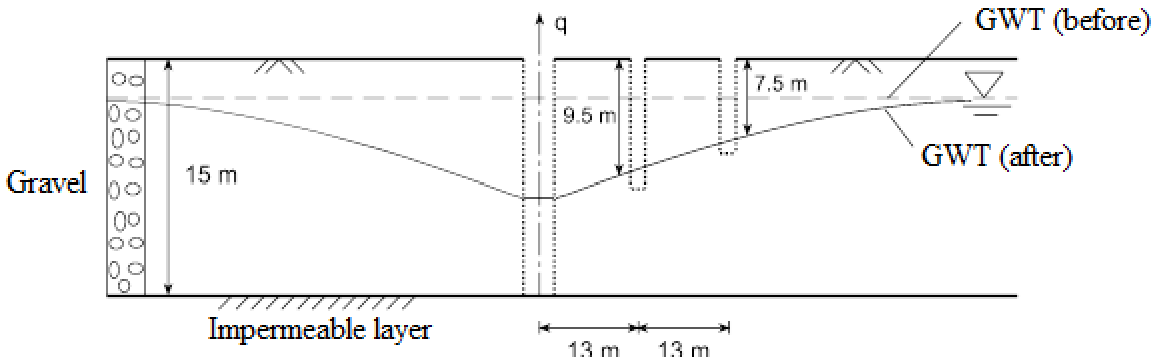
Problem 1: In the constant head test, where other information is given in the figure, water passes through the soil and is collected in a container. What is the height of the water in the pipe immersed at point A? How much water is collected in the container in 5 minutes? The length of the experimental setup perpendicular to the shape plane is fixed and is 0.16 m.



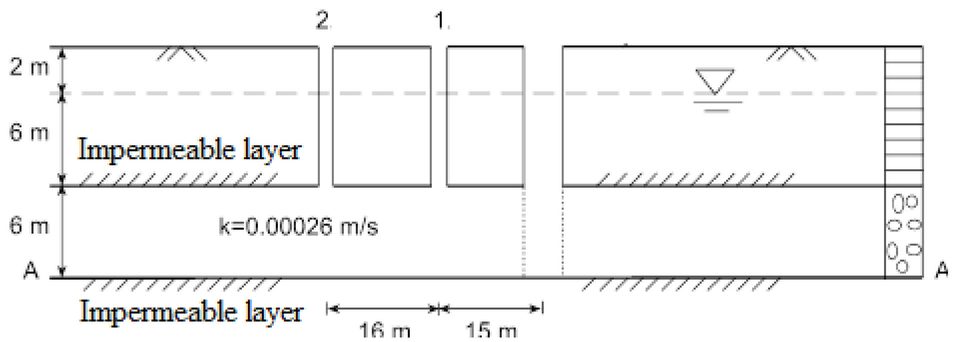
Problem 2: The other information is given in the figure, 624×10^{-6} m^3 of water is collected in the volumetric container in 8 minutes. Find k_3. The length of the experimental setup perpendicular to the shape plane is fixed and is 0.25 m.



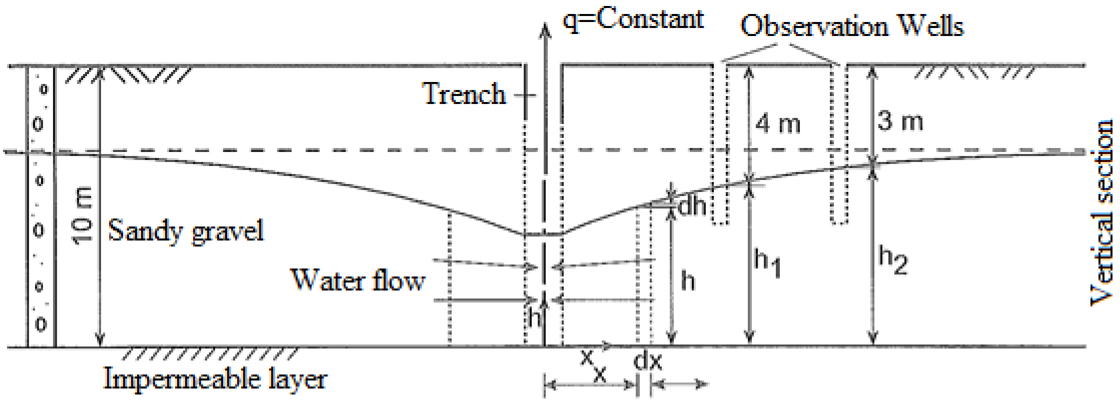
Problem 3: A trench was opened on the soil, the vertical cross-section of which is given in the figure, and the length of this trench perpendicular to the plane of the figure is large. Water was drawn at a constant flow along the trench. In steady state, in two observation wells opened perpendicular to the trench, water levels were measured as 9.5 m below the soil surface in the first well and 7.5 m in the second well. The flow of water drawn from 1 m length of the trench is 0.20 m^3/min, calculate the permeability coefficient of the soil.



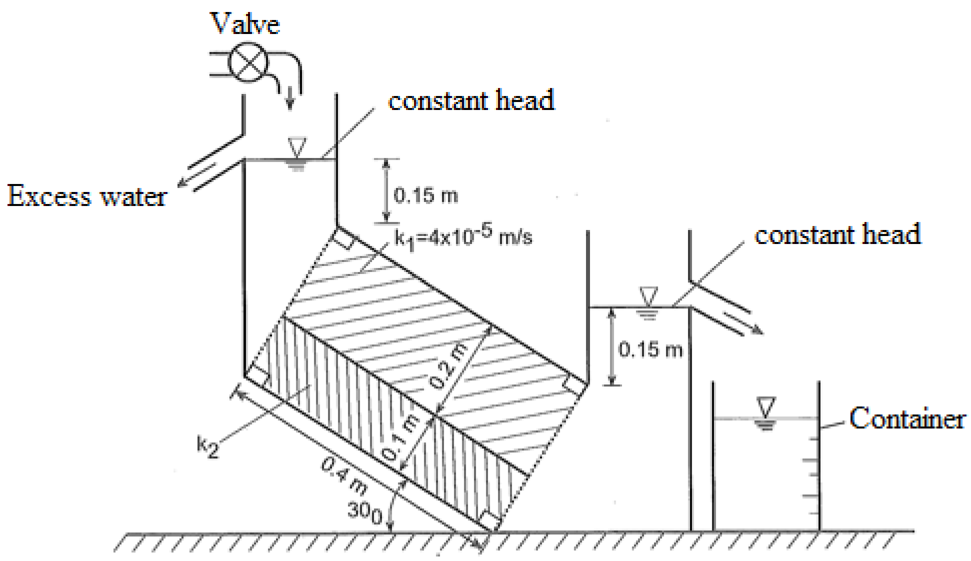
Problem 4: In the case of artesian, where other information is given in the figure, water is drawn from the drilled well with a constant flow of 1.28 m^3/min. In the case of stable equilibrium, the water level in the 2nd observation well is 9.8 m from level A-A. How far below the surface of the soil is the water level in the 1st well?



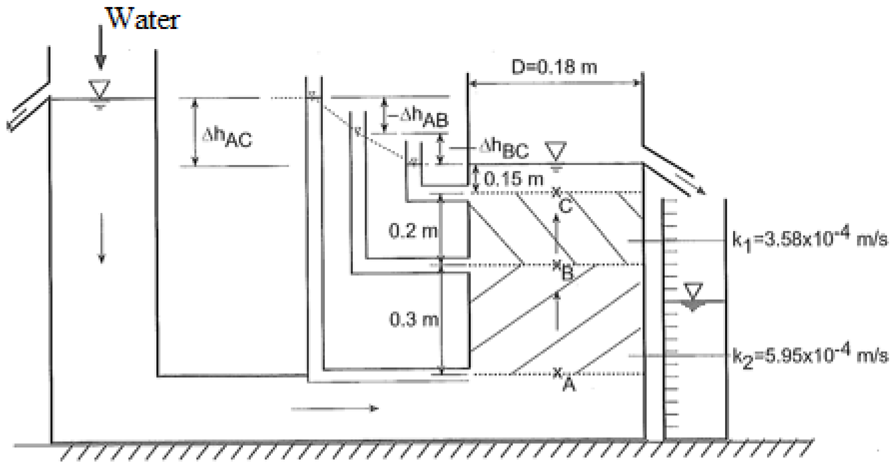
Problem 5: In the soil where other information is given in the figure, a trench with an infinite length (large) perpendicular to the plane of the figure was opened. Water was drawn at a constant flow along the trench. In steady state, water levels in two observation wells opened perpendicular to the trench were measured 4 m below the soil surface in the 1st well and 3 m in the 2nd well. The flow of water drawn from 1 m length of the trench is 3 m^3/min, calculate the permeability coefficient of the soil (x_1= 15 m, x_2= 30 m).



Problem 6: Other information is given in the figure, 624 ml of water is collected in the volumetric container in 8 minutes. Calculate K_2. The perpendicular length of the experimental setup to the shape plane is 0.25 m.

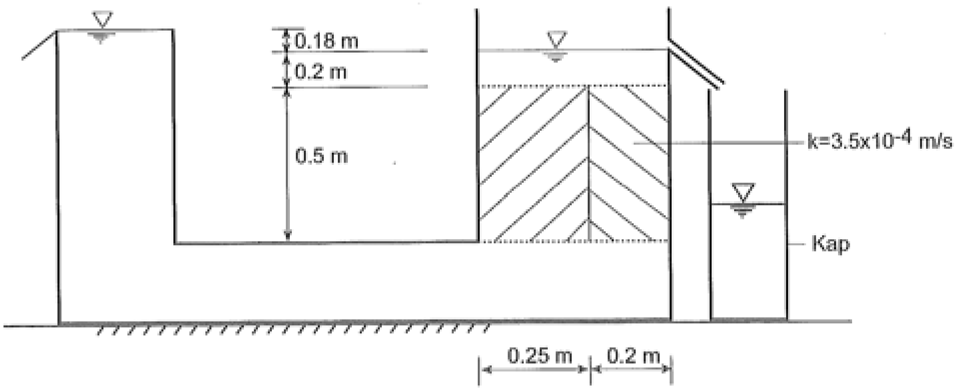


Problem 7: In the constant head system, where other information is given in the figure, water is collected in a container by passing through two different soil surfaces. If 2583.4 ml of water is collected in the container in 15 minutes, what is the height of the water in the pipes immersed at points A, B and C?

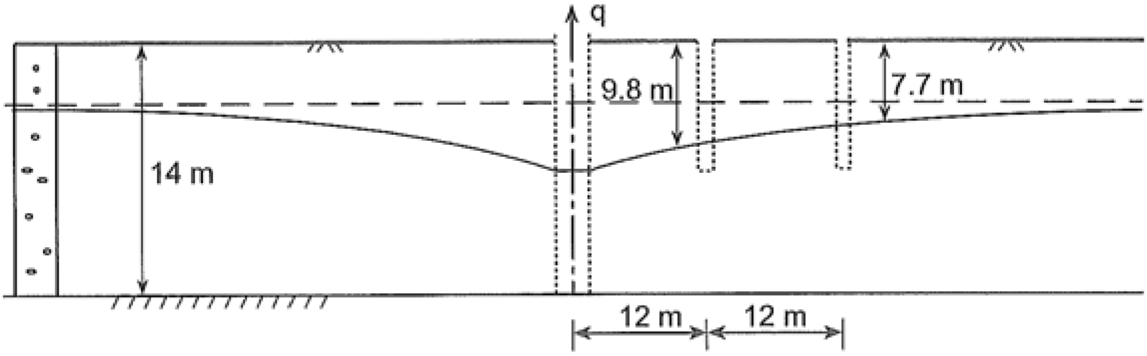


Problem 8: In a falling head test, the diameter of the pipe through which the water level drops is 9 mm, the diameter of the soil sample is 0.11 m and the length is 0.12 m. The water height, which was 1.35 m at the beginning of the test, decreased by 0.15 m after 10 minutes. Calculate the permeability coefficient of the soil.

Problem 9: In the constant head test, where other information is given in the figure, soil with different permeability coefficients was used. Considering that 648 ml of water is collected in the container in 50 s, calculate the permeability coefficient of the other soil. The perpendicular length of the experimental setup to the shape plane is 0.3 m.



Problem 10: In the case where other information is given in the figure, water is drawn from the opened test well with a flow rate of 0.18 m^3/min. In steady state, the water levels in the two observation wells opened at a distance of 12 m and 24 m from the center of the test well are 9.8 m and 7.7 m below the horizontal soil face, respectively. Calculate the permeability coefficient of the soil.



Problem 11: In the case of artesian, where other information is given in the figure, water is drawn from the drilled well with a constant flow rate of 1.2 m^3/min. In the case of stable equilibrium, the water level in the 2nd observation well is 10.8 m from level A-A. How far below the surface of the soil is the water level in the 1st well?