

Homework # 3

Assigned: 9/4/2015

Due: 9/11/2015

1. A cylindrical soil sample of 3.85 cm diameter and 10.00 cm height weights 201.13 g. The sample is then oven dried at 105 °C for 48 hours, reaching a final weight of 177.75 g. Assume a particle density of 2.65 g/cm³ and density of water 1.00 g/cm³:

Calculate

- The bulk density of the soil sample
 - Gravimetric and volumetric moisture content
 - Porosity
 - Equivalent depth of water contained in the soil sample
2. From the previous question, before oven drying what volume of water do we need to bring the soil water content to 0.35m³/m³?
 3. Calculate the soil water storage in mm for a 25" deep soil profile in which the A horizon is 10" thick and has a volumetric water content of 0.25 cm³ cm⁻³ and the B horizon is 15" thick and has a volumetric water content of 0.35 cm³ cm⁻³.
 4. Calculate the average volumetric water content after rainfall event for a 68 cm deep soil profile which had an average volumetric water content of 0.27 cm³ cm⁻³ before getting 6.4 cm of rain. Assume 28% of the rain was lost to interception and there were no other losses.