

Groundwater : Homework 1

1. (10pts) Based on the conservation of mass, show how the equation,

$$n = 1 - \frac{r_b}{r_s}$$

is derived from the void volume and bulk volume of a sample. This equation is similar to equation 3.9 in Fetter. Use the following nomenclature,  $V_b$  - bulk volume of material;  $V_s$  - volume of sediment;  $V_v$  - void volume.

2. (10 pts) What is the porosity of the volcanic ash measured in class? Show your work and exactly how you arrive at your answer. This will be sort of a proof.
3. (25 pts) Fetter 4<sup>th</sup> Ed, pg 109, questions in “Analysis” a-d. A transparency works great.