Tips for HW4

1. Keep in mind what quantities are conserved. You know about conservation of energy (First Law of Thermodynamics), conservation of mass (continuity equation). Is there a conservation of moles in a chemical reaction? How about conservation of volume?
2. In this problem, there are no chemical reactions happening. Also, you might be wondering about the pipe diameters, and if these are important to the problem. In a system like this, you can imagine that pipe diameter would be important (especially if you were to replace them with pipes that were much smaller). But, given the rest of the information in the problem, do you need to use pipe diameter in your solution?
3. Remember the definition of specific volume. It is the inverse of density. Specific volume is the volume occupied divided by the mass of substance. This is true for each components in the mixture, and for the mixture as a whole.