Physics 251 Homework 3

Imagine that you have two pieces of different types of metal of the same mass. You then perform the following experiment. You take 500 ml of water in a beaker with a diameter of 75 mm at 20.0+/-0.05°C in a well insulated container. The two masses are heated to 100°C. Metal A is place in the water container. After waiting some time, You find that the temperature of the system stabilizes at 24.8+/-0.05 °C. You then add metal B to the system and the final temperature is 26.7+/-0.05°C. You also observe that when you place metal B in the water, the water level rises by 3.7 +/- 0.1 mm

Without any numeric solutions, which metal has the higher heat capacity? Which has the higher specific heat? Explain.

Again, without any numeric solutions, which metal has a higher density? Explain.

What are the metals?

What is the mass of each of the two pieces of metal?

How much does the water rise when you add metal A?