EPS 100 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

More Hot Air Balloon Problems

$$Density= \frac{mass}{volume}$$

$Mass in kg= \frac{mass in g}{1000}$

1. If the balloon is not moving, what is the *overall* density of the balloon and everything that is attached to it?

 Overall Density = \_\_\_\_\_\_ kg/m3

2. Use the density formula to calculate the *overall* mass of the balloon and everything that is attached to it.

 Overall Mass = \_\_\_\_\_\_\_\_\_ kg

3. Add up the masses of all of the things that are being lifted – except for the hot air.

 Total Mass (excluding air) = \_\_\_\_\_\_\_\_\_\_g

4. Convert that mass to kilograms.

 Total Mass (excluding air) = \_\_\_\_\_\_\_\_\_\_kg

5. The **overall mass** (from #2) is \_\_\_\_\_\_\_kg. The **non-air mass** (from #4) is \_\_\_\_\_\_\_kg. This means that the

 **mass of the hot air** in the balloon must be \_\_\_\_\_\_\_ kg.

6. Use the density formula to calculate the density of the hot air in the balloon.

 Density of the Hot Air = \_\_\_\_\_\_\_\_\_\_ kg/m3.

**Problem Set 2**

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1. The overall density of the balloon (and the stuff it is lifting) = \_\_\_\_\_\_ kg/m3

2. The overall mass of the balloon (and the stuff it is lifting) = \_\_\_\_\_\_ kg

3. Add up the masses of all of the things that are being lifted – except for the hot air.

 Total Mass (excluding air) = \_\_\_\_\_\_\_\_\_\_g

4. Convert that mass to kilograms.

 Total Mass (excluding air) = \_\_\_\_\_\_\_\_\_\_kg

5. The **overall** mass (from #2) is \_\_\_\_\_\_\_kg. The **non-air mass**

 (from #4) is \_\_\_\_\_\_\_kg. This means that the mass of the hot air in the balloon must be \_\_\_\_\_\_\_ kg.

6. Use the density formula to calculate the density of the hot air in the balloon.

 Density of the Hot Air = \_\_\_\_\_\_\_\_\_\_ kg/m3.

**Problem Set 3**

1. The overall density of the balloon (and the stuff it is lifting) = \_\_\_\_\_\_ kg/m3



2. The overall mass of the balloon (and the stuff it is lifting) = \_\_\_\_\_\_ kg

3. Add up the masses of all of the things that are being lifted – except for the hot air.

 Total Mass (excluding air) = \_\_\_\_\_\_\_\_\_\_g

4. Convert that mass to kilograms.

 Total Mass (excluding air) = \_\_\_\_\_\_\_\_\_\_kg

5. The **overall mass** (from #2) is \_\_\_\_\_\_\_kg.

 The **non-air mass** (from #4) is \_\_\_\_\_\_\_kg.

 This means that the **mass of the hot air** in the balloon must be \_\_\_\_\_\_\_ kg.

6. Use the density formula to calculate the density of the hot air in the balloon.

 Density of the Hot Air = \_\_\_\_\_\_\_\_\_\_ kg/m3.