Experimental part (Mechanics)

There are given two cylindrical bodies (having identical external shapes and from the same material), two measuring rules, one graduated and other un-graduated, and a vessel with water.

It is known that one of the bodies is homogenous and the other has an internal cavity with the following characteristics:

- the cavity is cylindrical
- has the axis parallel with the axis of the body
- its length is practically equal with that of the body

Determine experimentally and justify theoretically:

a) The density of the material the two bodies consist of.

b) The radius of the internal cavity.

c) The distance between the axis of the cavity and the axis of the cylinder.

d) Indicate the sources of errors and appreciate which of them influences more the final results.

Write all the variants you have found.