

### Quiz #8: Fluids

**Problem 1** (2 points)

Three blocks labeled A, B, and C are floating in water as shown in the drawing. Blocks A and B have the same mass and volume. Block C has the same volume, but is submerged to a greater depth than the other two blocks. Which of the following statements concerning this situation is **false**?

- a) The density of block A is less than that of block C.
- b) The volume of water displaced by block C is greater than that displaced by block B.
- c) The buoyant force acting on block C is greater than that acting on block B.
- d) The volume of water displaced by block A is greater than that displaced by block B.
- e) Two of the above.

**Problem 2** (4 points)

An object weighs 50.0 N when weighed in air and 37.5 N when completely submerged in water. What is the density of the object?

**Problem 3** (4 points)

A car drives off a country bridge and ends up at the bottom of a lake. The car door is rectangular with dimensions 0.80 m by 1.20 m and is at an (average) depth of 4.50 m. How much force does the water exert on the car door?