1. A raft is 2.6 m long, 1.5 m wide, and 0.4 m thick. If 0.1 m of the raft is submerged when placed in water, determine the magnitude of the buoyant force.

2. A cube with side lengths equal to 90 cm has a density of 900 kg/m^3. The cube is placed into a tank of water.
   a. What is the mass of the cube?
   b. How far below the surface of the water will the bottom of the cube dip before coming to rest and floating in equilibrium?

3. A rectangular block is fully-submerged in water. The block has a length of 0.5 m, width of 0.3 m, and height of 0.2 m. What is the mass of the water that this object displaces when fully-submerged?

4. A boat displaces 60 m^3 of water as it floats.
   a. What is the magnitude of the buoyant force that acts on the boat?
   b. What is the mass of the boat?

5. A spherical object has a radius of 10 cm and a mass of 4.0 kg. If this object were submerged under water and released, would it float upwards or sink downwards? Your answer must come with numerical proof.

6. A long cable holds a 115 kg shark tank below the surface of saltwater, which has a known density of 1,025 kg/m^3. If the shark tank displaces 0.1 m^3 of saltwater, find the tension in the cable.