Calculating densities of rocks and minerals

Problem 1: You have a rock with a volume of 15cm^3 and a mass of 45 g. What is its density?

Problem 2: You have a different rock with a volume of 30cm^3 and a mass of 60g. What is its density?

Problem 3: In the above two examples which rock is heavier? Which is lighter?

Problem 4: In the above two examples which rock is more dense? which is less dense?

Problem 5: You decide you want to carry a boulder home from the beach. It is 30 centimeters on each side, and so has a volume of 27,000 cm^3. It is made of granite, which has a typical density of 2.8 g/cm^3. How much will this boulder weigh?

Problem 6: Rocks are sometimes used along coasts to prevent erosion. If a rock needs to weigh 2,000 kilograms (about 2 tons) in order not to be shifted by waves, how big (what volume) does it need to be? You are using basalt, which has a typical density of 3200 kg/m^3

Problem 7: A golden-colored cube is handed to you. The person wants you to buy it for $100, saying that is a gold nugget. You pull out your old geology text and look up gold in the mineral table, and read that its density is 19.3 g/cm^3. You measure the cube and find that it is 2 cm on each side, and weighs 40 g. What is its density? Is it gold? Should you buy it?

Calculating Specific Gravity of Rocks and Minerals

Problem 8: You have a sample of granite with density 2.8 g/cm^3. The density of water is 1.0 g/cm^3. What is the specific gravity of your granite?

Problem 9: You have a sample of granite with density 174.8 lbs/ft^3. The density of water is 62.4 lbs/ft^3. What is the specific gravity of the granite now?