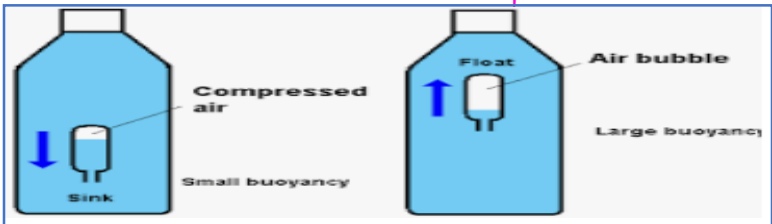
Physics Unit 2 Post Test Reflection

(each section is worth 14 points each)

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/cm³. You measure the cube and find that it is 2 cm on each side, and weighs 40 g.

1. What is its density?
2. Is it gold?

YOU MUST SHOW YOUR WORK TO GET CREDIT

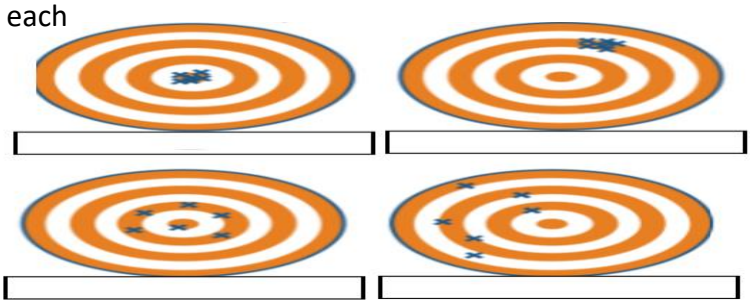


Explain how the **cartesian diver** work, use the terms pressure and volume in your explanation

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/m³

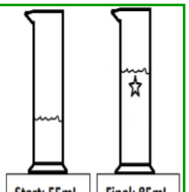
YOU MUST SHOW YOUR WORK TO GET CREDIT

Describe the "shots" on the targets below by using the descriptions Low/High Accuracy & Low/High Precision each



How Many Sig figs?	Solve the problems below
1278.50_____.	$(8.1 \times 10^3) \times (9.00 \times 10^4) =$
120000_____.	$(2.50 \times 10^{12}) + (5.00 \times 10^6) =$
90027.00_____.	$(2.735 \times 10^{18}) - (4.7 \times 10^8) =$
0.0005357_____.	$\frac{9.67 \times 10^4}{((2.400 \times 10^4) + (1.8 \times 10^2))} =$
670_____.	

An object is inserted into a graduated cylinder currently holding 55 mL of H_2O in it. Once the object is inserted into the water, the water level rose to 85 mL.



1. What is the volume of the object?
2. What is the mass of the object if the density is 11,900 kg/m³?

You must show your work to get credit!!

Explain the relationship between the mass of the ducky and the water displaced by the ducky.

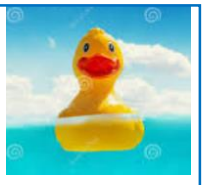


TABLE 1.6 Densities of Some Common Materials

Substance	Density (g/cm³)	Substance	Density (g/cm³)
Ice (0°C)	0.917	Human fat	0.94
Water (4.0°C)	1.0000	Cork	0.22–0.26
Gold	19.31	Table sugar	1.59
Helium (25°C)	0.000 164	Balsa wood	0.12
Air (25°C)	0.001 185	Earth	5.54

If you were to have exactly a 100.0 gram sample of each material, which sample would occupy the most space?

If you were to have exactly 1 1000.0 cm³ sample of each material, which sample would contain the most matter?