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Complete the following questions.

1. Define mass?
2. Define volume?
3. Define density and show the formula for calculating density.
4. Aluminum is used to make airplanes. Cast iron is used to make weightlifting equipment. Explain why the densities of these metals make them useful for these purposes?
5. What is the density of water?

Remember for water $1 \mathrm{~g}=1 \mathrm{ml}=1 \mathrm{~cm}^{3}$
6. Why does an air bubble rise to the surface of a glass of water?
7. Calculate the densities of the following objects.

Remember to SHOW WORK and place units after each number.
Object A length $=6.2 \mathrm{~cm} \quad$ width $=3.4 \mathrm{~cm} \quad$ height $=1.2 \mathrm{~cm} \quad$ mass $=36.7 \mathrm{~g}$
volume $=$ $\qquad$
density $=$ $\qquad$
Object B length $=10.8 \mathrm{~cm}$ width $=5.4 \mathrm{~cm} \quad$ height $=2.2 \mathrm{~cm} \quad$ mass $=300.8 \mathrm{~g}$
volume $=$ $\qquad$
density = $\qquad$
Object C Determine the density of object C (silly putty) using the information below
Initial water level in graduated cylinder $=25 \mathrm{ml}$
Final water level after placing silly putty into graduated cylinder $=29 \mathrm{ml}$ Mass of silly putty $=8 \mathrm{~g}$
volume $=$ $\qquad$
density $=$ $\qquad$
What is this method called? $\qquad$
8. Place a " X " on the line if the object listed will float in water (density $1 \mathrm{~g} / \mathrm{ml}$ )?
A. air $=.001 \mathrm{~g} / \mathrm{cm}^{3}$
B. corn oil $=.93 \mathrm{~g} / \mathrm{cm}^{3}$ $\qquad$
C. glycerin $=1.26 \mathrm{~g} / \mathrm{cm}^{3}$
D. corn syrup $=1.38 \mathrm{~g} / \mathrm{cm}^{3}$
E. $\quad \operatorname{wood}=.85 \mathrm{~g} / \mathrm{cm}^{3}$
F. $\quad$ steel $=7.81 \mathrm{~g} / \mathrm{cm}^{3}$
G. $\quad$ rubber $=1.34 \mathrm{~g} / \mathrm{cm}^{3}$
H. ice $=.92 \mathrm{~g} / \mathrm{cm}^{3}$
I. water $=1.00 \mathrm{~g} / \mathrm{cm}^{3}$
9. Assuming the materials don't mix, show how the materials would "stack up" in a graduated cylinder.

Use the letters from above and the cylinder sketch to the right to record your answer.
10. Does ice float or sink in water?


