



## CLASS SET Physical Science Density Problem Set

**Use lab notebook to work problems**

**Show all work!**

1. What is the circle formula for density as shown in class?
2. Use the circle formula to solve for  $d$  using  $m$  and  $v$  and then write the equation.
3. A small chunk of metal you found in the creek that you think might be pure gold has a volume of 12 cubic centimeters and a mass of 231 grams. The density of pure gold is 19.3 grams per cubic centimeter. Should you go to the bank or back home to dinner? (use circle formula; **SHOW ALL WORK!**)
4. Calyx King was playing with both her pet tortoise and her pet mouse at the same time. She picked them both up at once and cried out in excitement “By George, I think my tortoise is super dense” (the ‘super dense’ part being in goofy science geek voice). She put her tortoise in water and measured its volume to be 1.5 Liters (L) by water displacement. She measured its mass and it was 2000grams (g). What is the density of Calyx’s tortoise? (use circle formula; **SHOW ALL WORK!**)
5. Hana Ben-Dashan was riding an African lion in Italy this Summer. The lion was running through the town square of Venice when all of a sudden the lion saw Camron Diaz walking along with a poodle sticking out of her purse! Suddenly, the lion lunged and bit down hard on the purse with the poodle in it but its fangs didn’t pierce the poor poodle because it was shielded by Camron’s iPhone case instead, denting it badly. Hana screamed, Camron screamed, the poodle screamed, and the lion roared: “these new iPhone cases erk my craw because of how dense they are!” If the density of the the iPhone case is 500g/ml and its volume is 45ml, what is the mass of the iPhone case in Camron’s purse? (use circle formula; **SHOW ALL WORK!**).
6. Steven Taylor was in Florida last summer working on a project he designed to save the endangered rain forests there. He and his team were digging in two areas taking soil samples. Area “A” had soft, lush, rich, dark, not very dense soil. Area “B” had hard, compact, dry, dense soil. Steven told his team; “Listen up! We need to calculate the density of Area “B” soil stat to save this rain forest!!” His students told him that the mass of a sample of B-soil was 20g and the density was 4g/ml but they had lost the volume. Steven said “ay chiwhawha, what is the volume of soil you measured? (use circle formula; **SHOW ALL WORK!**)