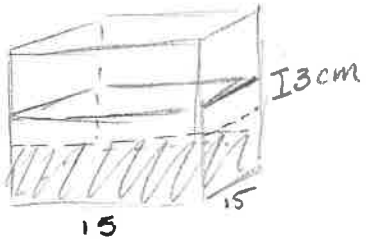
Density
Unit 11

Name: Solutions
Date: _____ Period: _____

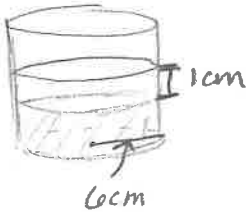
1.) When you put a rock into a container of water, it raises the water level 3cm. if the container is a rectangular prism whose base measures 15 cm by 15 cm, what is the volume of the rock?



$V = 18(15X3)$

$V = 675cm^3$

2.) You drop a solid glass ball into a cylinder with radius of 6cm, raising the water level 1 cm. What is the volume of the glass ball?



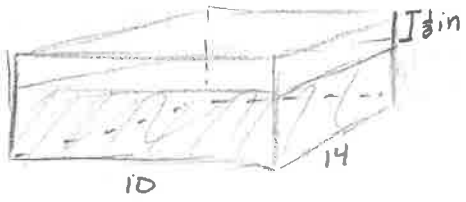
$V = \pi r^2(h)$

$V = \pi(6)^2(1)$

$V = 36\pi$

$V = 113.1cm^3$

3.) A fish tank 10 by 14 by 12 inches high is the home of a large goldfish name Columbia. She is taken out when her owner cleans the tank, and the water level in the tank drops 1/3 inch. What is Columbia's volume?



$\approx 47in^3$

For #4-8 refer to the table from your notes.

4.) What is the mass of a solid block of aluminum if its dimensions are 4cm by 8 cm by 20 cm?

1798.4g

5.) Which has more mass: a solid cylinder of gold with a height of 5 cm and a diameter of 6 cm or a solid cone of platinum with a height of 21 cm and a diameter of 8 cm?

The gold has mass 2728.5g, and the platinum has mass 7529.8g. The solid cone of platinum has more mass.

6.) Chemist Dean Dalton is given a clump of metal and is told that it is sodium. He finds that the metal has mass 145.5 g. He places it into a nonreactive liquid in a square prism whose base measures 10 cm on each edge. If the metal is indeed sodium, how high should the liquid level rise?

1.5 cm

7.) A square-prism container with a base 5 cm by 5cm is partially filled with water. You drop a clump of metal with mass 525 g into the container, and the water level rises 2 cm. What is the density of the metal? Assuming the metal is pure, what is the metal?

$10.5\ g/cm^3$; Silver

8.) When ice floats in water, one-eight of its volume floats above the water level and seven-eights floats beneath the water level. A block of ice placed into an ice chest causes the water in the chest to rise 4 cm. The right rectangular chest measure 35 cm by 50 cm by 30 cm high. What is the volume of the block of ice?

$8000\ cm^3$