Name Schlansky
Mr. Schlansky

Date _____
Geometry

Unit Analysis

1. A block of wood has a volume of 200 cm^3. The cost of the wood is \$.10 per gram and the density of the wood is 2.1 g/cm^3. What would be the cost of producing 15 of these blocks of wood.

$$200\ cm^3 \times \frac{2.1\ g}{1\ cm^3} \times \frac{.10\ \$}{1\ g} \times 15 = \$630.00$$

2. A cylindrical test tube has a volume of 45 in^3. The liquid inside has weighs 4 ounces per cubic inch and the cost of the liquid is \$.12 per ounce. How much will it cost to fill the test tube to 80% of its capacity?

$$45\ in^3 \times \frac{4\ oz}{1\ in^3} \times \frac{.12\ \$}{1\ oz} \times .8 = \$17.28$$

3. The volume of a pool is 25,000 gallons. The cost of the water to fill the pool is \$120 per 8000 gallons. How much will it cost to fill the pool up 90%?

$$25{,}000\ gal \times \frac{120\ \$}{8000\ gal} \times .9 = \frac{25000(120)(.9)}{8000} = \$337.50$$

4. An object made of steel has a volume of 24.1 cm^3. The steel costs \$1.25 for 500 grams and has a density of 3.1 g/cm^3. How much will it cost to make 25 of these objects?

$$24.1\ cm^3 \times \frac{3.1\ g}{1\ cm^3} \times \frac{1.25\ \$}{500\ g} \times 25 = \frac{24.1(3.1)(1.25)(25)}{500}$$

\$4.67

5. A stone brick has a volume of 150 in^3. The stone weighs 5 grams per cubic inch and it costs \$4.52 for 500 grams of stone. How much will it cost to purchase enough stone to make 12 bricks?

$$150\ in^3 \times \frac{5\ g}{1\ in^3} \times \frac{4.52\ \$}{500\ g} \times 12 = \frac{150(5)(4.52)(12)}{500}$$

\$81.36

6. A machinist creates a solid steel part for a wind turbine engine. The part has a volume of 1015 cubic centimeters. Steel can be purchased for \$0.29 per kilogram, and has a density of 7.95 g/cm^3. If the machinist makes 500 of these parts, what is the cost of the steel, to the *nearest dollar*?

convert g to Kg

$1015\ cm^3 \times \frac{7.95\ g}{1\ cm^3} \times \frac{1\ Kg}{1000\ g} \times \frac{.29\ \$}{1\ Kg} \times 500 = \frac{1015(7.95)(.29)(500)}{1000}$

\$1170

Convert l to Kl

7. A water tower has a volume of 1000 liters and the cost of the water is \$250 per cubic kiloliter. How much will it cost to fill the water tower up to 60% of its capacity?

$1000\ l \times \frac{1\ Kl}{1000\ l} \times \frac{250\ \$}{1\ Kl} \times .6 = \frac{1000(250)(.6)}{1000} =$ \$150

Convert g to Kg

8. A wax candle has a volume of 885 cubic centimeters. The wax costs \$1.24 per kilogram and has a density of 1.9 g/cm^3. How much will it cost to make 80 candles?

$885\ cm^3 \times \frac{1.9\ g}{1\ cm^3} \times \frac{1\ Kg}{1000\ g} \times \frac{1.24\ \$}{1\ Kg} \times 80 = \frac{885(1.9)(1.24)(80)}{1000}$

\$166.80

9. An object has a volume of 12 cubic inches and the material it is made from has a density of 7.6 g/in^3. If the cost of the material is \$1.25 per kilogram, how much will it cost to make 50 of these objects?

convert g to Kg

$12\ in^3 \times \frac{7.6\ g}{1\ in^3} \times \frac{1\ Kg}{1000\ g} \times \frac{1.25\ \$}{1\ Kg} \times 50 = \frac{12(7.6)(1.25)(50)}{1000}$

\$5.70

10. An object has a volume of 1200 cubic feet. The material it is made of weighs 3.2 pounds per cubic foot and it costs \$2.50 per ounce. If a company has to pay 75% of the cost, how much will the company have to pay for 15 of these objects?

convert pounds to ounce

$1200\ ft^3 \times \frac{3.2\ Pounds}{1\ ft^3} \times \frac{16\ ounces}{1\ Pounds} \times \frac{2.50\ \$}{1\ ounces} \times .75 \times 15$

\$1,728,000