

Name: _____ Period: _____ Date: _____

Dimensional Analysis Worksheet #2

Remember to show all of your work neatly. Include units throughout and show how they cancel out.

1. $90.889 \text{ Ms} = ? \text{ Ts}$ $\frac{90.889 \text{ Ms} | 10^6 \text{ s} | 1 \text{ Ts}}{1 \text{ Ms} | 10^{12} \text{ s}} = 9.0889 \times 10^{-5} \text{ Ts}$

2. $6.99 \times 10^{12} \text{ mm} = ? \text{ km}$ $\frac{6.99 \times 10^{12} \text{ mm} | 10^{-3} \text{ m} | 1 \text{ km}}{1 \text{ mm} | 10^3 \text{ m}} = 6.99 \times 10^6 \text{ km}$

3. $12.5 \text{ years} = ? \text{ seconds}$ $\frac{12.5 \text{ yr} | 365 \text{ day} | 24 \text{ hr} | 60 \text{ min} | 60 \text{ sec}}{1 \text{ yr} | 1 \text{ day} | 1 \text{ hr} | 1 \text{ min}} = 3.94 \times 10^8 \text{ sec}$

4. $4.0090 \times 10^{-9} \text{ Gm} = ? \text{ m}$ $\frac{4.0090 \times 10^{-9} \text{ Gm} | 10^9 \text{ m}}{1 \text{ Gm}} = 4.0090 \text{ m}$

5. $30 \text{ m} = ? \text{ micrometers}$ $\frac{30 \text{ m} | 1 \mu\text{m}}{10^{-6} \text{ m}} = 3 \times 10^7 \mu\text{m}$

6. $55.009 \text{ GL} = ? \text{ cm}^3$ $\frac{55.009 \text{ GL} | 10^9 \text{ L} | 1 \text{ mL} | 1 \text{ cm}^3}{1 \text{ GL} | 10^{-3} \text{ L} | 1 \text{ mL}} = 5.5009 \times 10^{13} \text{ cm}^3$

7. The record long jump is 349.5 in. Convert this to meters (1 in=2.54 cm). $\frac{349.5 \text{ in} | 2.54 \text{ cm} | 1 \text{ m}}{1 \text{ in} | 100 \text{ cm}} = 8.877 \text{ m}$

8. Karl bought a steak to cook on his barbecue. The steak weighed 2 pounds, 12 ounces and cost \$3.99 a pound. How much did Karl have to pay for the steak?

$\frac{44 \text{ oz} | 1 \text{ lb} | \$3.99}{16 \text{ oz} | 1 \text{ lb}} = \10.97

$\frac{2.75 \text{ lb} | \$3.99}{1 \text{ lb}} = \$10.97$

9. In 1980, the U.S. produced 18.4 billion lb of phosphoric acid to be used in the manufacture of fertilizer. The average cost of the acid is \$318/ton (1 ton=2000 lb). What was the total value of the phosphoric acid produced?

$$\frac{18,400,000,000 \text{ lb}}{2000 \text{ lb}} \times \frac{1 \text{ ton}}{1 \text{ ton}} \times \$318 = \$2,930,000,000$$

10. The price of a ream of paper is \$4.00. There are 500 sheets of paper in a ream. If a sheet of paper weighs 0.50 oz., what is the price of one pound of paper? (16 oz. = 1 lb)

$$\frac{1 \text{ lb}}{16 \text{ oz}} \times \frac{16 \text{ oz}}{0.50 \text{ oz}} \times \frac{1 \text{ sheet}}{500 \text{ sheet}} \times \frac{1 \text{ ream}}{1 \text{ ream}} \times \$4.00 = \$0.26 \text{ or } 26 \text{¢}$$

Extra Fun Bonus Question:

Let's say you weigh 160 lbs. You get sick with the geebies and your grandma gives you some tonic that reads: *Take 1 drop per 10 lbs. of body weight per day divided into 4 doses until the geebies are gone.* How many drops do you want to take per dose?

$$\frac{160 \text{ lbs}}{4 \text{ doses per day}} \times \frac{1 \text{ drop}}{10 \text{ lbs}} = 4 \text{ drops/dose}$$