

Name: KEY Worksheet #1 Date _____

Convert the following. Show all work and place a box around your answer. You must use dimensional analysis / the fencepost method to find your answer.

1. 6 doughnuts = ? dozen

$$\frac{6 \text{ doughnuts}}{12 \text{ doughnuts}} \times \frac{1 \text{ dozen}}{1} = \boxed{0.5 \text{ dozen}}$$

2. 2.5×10^3 cents = ? dollars

$$\frac{2.5 \times 10^3 \text{ ¢}}{100 \text{ ¢}} \times \frac{1 \text{ dollar}}{1} = \boxed{25 \text{ dollars}}$$

3. 10 inches = ? mm (2.54 cm = 1 inch)

$$\frac{10 \text{ in}}{1 \text{ in}} \times \frac{2.54 \text{ cm}}{1 \text{ cm}} \times \frac{1 \text{ m}}{100 \text{ cm}} \times \frac{1000 \text{ mm}}{1 \text{ m}} = 254 \text{ mm} = \boxed{254 \text{ mm}}$$

4. 190.00 Hm = ? cm

$$\frac{190.00 \text{ Hm}}{1 \text{ Hm}} \times \frac{10^2 \text{ m}}{1 \text{ m}} \times \frac{1 \text{ cm}}{10^{-2} \text{ m}} = \boxed{1.9000 \times 10^6 \text{ cm}}$$

5. 1.008×10^{12} ms = ? years

$$\frac{1.008 \times 10^{12} \text{ ms}}{1 \text{ ms}} \times \frac{10^{-3} \text{ s}}{1 \text{ s}} \times \frac{1 \text{ min}}{60 \text{ s}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{1 \text{ day}}{24 \text{ hr}} \times \frac{1 \text{ yr}}{365 \text{ day}} = \boxed{31.96 \text{ yr}}$$

6. 30.998 Tg = ? mg

$$\frac{30.998 \text{ Tg}}{1 \text{ Tg}} \times \frac{10^{12} \text{ g}}{1 \text{ g}} \times \frac{1 \text{ mg}}{10^{-3} \text{ g}} = \boxed{3.0998 \times 10^{16} \text{ mg}}$$

7. 5.00×10^3 μm = ? m

$$\frac{5.00 \times 10^3 \text{ μm}}{1 \text{ μm}} \times \frac{10^{-6} \text{ m}}{1 \text{ m}} = \boxed{5.00 \times 10^{-3} \text{ m}}$$

8. 3.009 Hm = ? pm

$$\frac{3.009 \text{ Hm}}{1 \text{ Hm}} \times \frac{10^2 \text{ m}}{1 \text{ m}} \times \frac{1 \text{ pm}}{10^{-12} \text{ m}} = \boxed{3.009 \times 10^{14} \text{ pm}}$$

9. 0.0000005 TL = ? cm³

$$\frac{0.0000005 \text{ TL}}{1 \text{ TL}} \times \frac{10^{12} \text{ L}}{1 \text{ L}} \times \frac{1 \text{ mL}}{10^{-3} \text{ L}} \times \frac{1 \text{ cm}^3}{1 \text{ mL}} = \boxed{5 \times 10^8 \text{ cm}^3}$$

10. 6.9870×10^{12} mg = ? Mg

$$\frac{6.9870 \times 10^{12} \text{ mg}}{1 \text{ mg}} \times \frac{10^{-3} \text{ g}}{1 \text{ g}} \times \frac{1 \text{ Mg}}{10^6 \text{ g}} = \boxed{6987.0 \text{ Mg}}$$