Name(s): _____

Worksheet: Units, Measurements, & Conversions

https://www.youtube.com/watch?v=hQpQ0hxVNTg&list=PL8dPuuaLjXtPHzzYuWy6fYE aX9mQQ8oGr&index=2 (11:23 min/sec)

1. How many significant figures are there in the following numbers?

   a) 42,000. L _____   b) 0.4010 g _____

   c) 0.00130 s _____   d) 405,700,000 km _____

2. Complete the table. Provide ordinary decimal form or scientific notation and the type of unit. The first line has been completed as an example for **mass**.

Ordinary Decimal Form	Scientific Notation
0.683 kg (mass)	**6.83×10^{-1} kg**
1365 mL ( )	**mL**
( )	**1.034×10^{1} m**
0.00350 μs ( )	**μs**
( )	**1.75×10^{-3} cm^3**
1,605,000 nm ( )	**nm**

3. How many significant figures in the numeric value would be appropriate for each of the following values using the specified units?

   The speed of a car in miles per hour as read from a speedometer when traveling at the speed limit on Viking Drive (25 mph).

   Your weight using lbs.

4. Using your height in feet and inches convert to (a) centimeters (cm), and (b) meters (m). Complete the dimensional set ups below.

(a)

$$\frac{? \text{ ft}}{} \quad \frac{12 \text{ in}}{1 \text{ ft}} \quad \frac{2.54 \text{ cm}}{1 \text{ in}} + \frac{? \text{ in}}{} \quad =$$

(b)

$$\frac{? \text{ cm}}{} \quad =$$

5. Solve each of the following expressions. Write your answers in scientific notation with the number expressed with the correct number of significant figures.

    a) 6.42×10^4 L $+$ 3.5×10^3 L $=$ c) $(8 \times 10^1$ m$) \div (4.0 \times 10^2$ m$)$ $=$

    b) 6.42×10^4 mL $-$ 3.5×10^3 mL $=$ d) $(4.00 \times 10^{-2}$ cm$)^3$ $=$

6. Circle the largest quantity in each pair. (Convert one measurement to the unit of the other and compare.)

    a.   3.88 kg, 3905 g

    b.   35.5 mL, 0.0194 L

    c.   28.3 cm, 0.90 ft   (1 in. $\equiv$ 2.54 cm, 12 in $=$ 1 ft)

7. Rank (A), (B), and (C) from the smallest to largest quantity:

    (A) 6.11×10^3 cm^3, (B) 1.75 gal (1 gal $=$ 3,785 mL), (C) 6,055 mL (1 mL $=$ 1 cm^3)

          _____ $<$ _____ $<$ _____

    (A) 9.35×10^2 g, (B) 9.25 kg, (C) 9.15 x 10^6 mg

          _____ $<$ _____ $<$ _____