

Metric conversions:

Okay, here are some for you to try:

- 1) $23.6 \text{ kJ} \times \frac{1 \times 10^3 \text{ J}}{1 \text{ kJ}} = 2.36 \times 10^4 \text{ J}$
- 2) $58216 \text{ } \mu\text{L} \times \frac{1 \times 10^{-6} \text{ L}}{1 \text{ } \mu\text{L}} \times \frac{1 \text{ daL}}{1 \times 10^1 \text{ L}} = 5.8216 \times 10^{-3} \text{ daL}$
- 3) $46.875 \text{ TB} \times \frac{1 \times 10^{12} \text{ B}}{1 \text{ TB}} \times \frac{1 \text{ kB}}{1 \times 10^3 \text{ B}} = 4.6875 \times 10^{10} \text{ kB}$
- 4) $22.16 \text{ ms} \times \frac{1 \times 10^{-3} \text{ s}}{1 \text{ ms}} \times \frac{1 \text{ fs}}{1 \times 10^{-15} \text{ s}} = 2.216 \times 10^{13} \text{ fs}$
- 5) $3.78 \times 10^{-2} \text{ Mg} \times \frac{1 \times 10^6 \text{ g}}{1 \text{ Mg}} \times \frac{1 \text{ cg}}{1 \times 10^{-2} \text{ g}} = 3.78 \times 10^6 \text{ cg}$

Conversion between systems of measure:

There are several "correct" ways of doing these. If you did them in a different way, but got the same answer, then you did them correctly

- 1) $103 \text{ kg} \times \frac{1 \times 10^3 \text{ g}}{1 \text{ kg}} \times \frac{1 \text{ oz.}}{28.3 \text{ g}} = 3.64 \times 10^3 \text{ oz.}$
- 2) $653 \text{ nm} \times \frac{1 \times 10^{-9} \text{ m}}{1 \text{ nm}} \times \frac{1 \text{ }^\circ\text{A}}{1 \times 10^{-10} \text{ m}} = 6.53 \times 10^3 \text{ }^\circ\text{A}$
- 3) $6.375 \text{ pint} \times \frac{1 \text{ gal}}{8 \text{ pint}} \times \frac{3.785 \text{ L}}{1 \text{ gal}} = 3.016 \text{ L}$
- 4) $0.75 \text{ ton} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{1 \text{ kg}}{2.20 \text{ lb}} = 680 \text{ kg}$
- 5) $3.89266 \times 10^{-17} \text{ lb} \times \frac{1 \text{ kg}}{2.20 \text{ lb}} \times \frac{1 \text{ amu}}{1.6606 \times 10^{-27} \text{ kg}} = 1.07 \times 10^{10} \text{ amu}$
- 6) $8.00 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}} \times \frac{1 \times 10^{-2} \text{ m}}{1 \text{ cm}} \times \frac{1 \text{ } \mu\text{m}}{1 \times 10^{-6} \text{ m}} = 2.44 \times 10^6 \text{ } \mu\text{m}$
- 7) $26.22 \text{ mile} \times \frac{1.609 \text{ km}}{1 \text{ mile}} \times \frac{1 \times 10^3 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ mm}}{1 \times 10^{-3} \text{ m}} = 4.219 \times 10^7 \text{ mm}$
- 8) $2.336 \text{ gal} \times \frac{3.785 \text{ L}}{1 \text{ gal}} \times \frac{1 \text{ nL}}{1 \times 10^{-9} \text{ L}} = 8.842 \times 10^9 \text{ nL}$

Problem Solving:

$$9.536 \times 10^{10} \text{ lb} \times \frac{453.59 \text{ g}}{1 \text{ lb}} \times \frac{1 \text{ cm}^3}{1.84 \text{ g}} \times \left(\frac{1 \times 10^{-2} \text{ m}}{1 \text{ cm}} \right)^3 = 2.35 \times 10^7 \text{ m}^3$$

$$2.500 \times 10^6 \text{ L} \times \frac{1 \text{ mL}}{1 \times 10^{-3} \text{ L}} \times \frac{1 \text{ cm}^3}{1 \text{ mL}} \times \left(\frac{1 \text{ in}}{2.54 \text{ cm}} \right)^3 \times \frac{1 \text{ s}}{54.5 \text{ in}^3} \times \frac{1 \text{ hr}}{3600 \text{ s}} \times \frac{1 \text{ day}}{24 \text{ hr}} = 32.4 \text{ day}$$