

#3

Step One: Underline the lonely unit (the unit that is not paired with another unit). Circle pairs of units. Draw a box around the unit the answer should be in.

If a beachcomber finds a copper coin with a volume of 66.0 mL, how many atoms of copper did the beachcomber find? Assume that 255 atoms of copper have a mass of 2.69×10^{-20} grams. Also assume that the density of copper is 8.98 grams per mL.

Step Two: Solve below using dimensional analysis. Choose words before numbers.

$$66.0 \text{ mL} \times \left(\frac{8.98 \text{ grams}}{1 \text{ mL}} \right) \left(\frac{255 \text{ atoms}}{2.69 \times 10^{-20} \text{ grams}} \right) = 5.62 \times 10^{24} \text{ atoms}$$

#4

Step One: Underline the lonely unit (the unit that is not paired with another unit). Circle pairs of units. Draw a box around the unit the answer should be in.

If a beachcomber finds one copper penny every 355 minutes, and copper pennies have a mass of 2.48 grams, how many grams of copper will the beachcomber find in 7.25 hours?

Step Two: Solve below using dimensional analysis. Choose words before numbers.

$$7.25 \text{ Hours} \times \left(\frac{60 \text{ MINUTES}}{1 \text{ Hours}} \right) \left(\frac{1 \text{ PENNY}}{355 \text{ MINUTE}} \right) \left(\frac{2.48 \text{ GRAMS}}{1 \text{ PENNY}} \right) = 3.04 \text{ grams}$$



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ANSWERS

#1

Step One: Underline the lonely unit (the unit that is not paired with another unit). Circle pairs of units. Draw a box around the unit the answer should be in.

If the density of iron is 7.87 grams per 1 mL, find the mass in grams of 22.03 liters of iron.

Step Two: Solve below using dimensional analysis. Choose words before numbers.

$$22.03 \text{ L} \times \left(\frac{1000 \text{ mL}}{1 \text{ L}} \right) \times \left(\frac{7.87 \text{ grams}}{1 \text{ mL}} \right) = 173000 \text{ grams}$$

#2

Step One: Underline the lonely unit (the unit that is not paired with another unit). Circle pairs of units. Draw a box around the unit the answer should be in.

If the density of iron is 7.87 grams per 1 mL, find the volume of 22.03 grams of iron.

Step Two: Solve below using dimensional analysis. Choose words before numbers.

$$22.03 \text{ grams} \times \left(\frac{1 \text{ mL}}{7.87 \text{ grams}} \right) = 2.80 \text{ mL}$$

#3 Use and like a true chemist.Complete the following problems in your calculator and record the answer in the proper number of significant figures.

$(4.25 \times 10^6 \text{ cm})(2.03 \times 10^5 \text{ cm})$	$8.6275 \times 10^{11} \approx 8.63 \times 10^{11} \text{ cm}^2$
$\frac{(2.8 \times 10^2 \text{ kg})}{(4.003 \times 10^7 \text{ s})}$	$69947 \approx 70000 \frac{\text{kg}}{\text{s}}$ two sig figs check your units