

CHM 130 Chapter 3 Worksheet on conversions and Density.

1. Calculate the density of a piece of solid gold if the gold weighs 82.5 g and has a volume of 4.30 mL.
2. Calculate the density of lotion if the contents of a bottle of 650 mL weighs 1170 grams.
3. The density of ethanol is 0.789 g/mL. How much will 1250 mL of ethanol mass in grams?
4. The density of mercury is 13.6 g/mL. What is the volume of 72 grams of mercury?
5. The density of silver is 10.5 g/cm³. If a pure silver coin has a volume of 45 cm³, what is its mass?
6. The density of chloroform is 1.483 g/mL. What is the mass of 1.250 L of chloroform?
7. The density of aluminum is 2.70 g/cm³. What is the volume of 8850 mg of aluminum?
8. The density of copper is 8.96 g/cm³. What is the volume of a copper ring that masses 103.5428 grams?

9. It is 48.5 km from Glendale to Surprise. What is this in dm?

10. John's hamster weighs 425.87 grams. What is this in mg?

11. Sally drank 435 mL of soda. What is this in microliters?

12. Frankie threw the football 52 yards to Thomas. How many km is this?

13. Ariana's baby weighs 19.45 pounds. What is this in cg?

14. Chelsea made 14 gallons of punch. How many L is this?

15. Skylar ran 100.0 yards in 20.5 seconds. How many inches is this?

16. Graceland elementary school bought 9452 cups of juice for their school lunches. How many quarts is this?

Answers

- $d = \left(\frac{82.5 \text{ g}}{4.30 \text{ mL}}\right) = 19.2 \text{ g/mL}$
- $d = \left(\frac{1170 \text{ g}}{650 \text{ mL}}\right) = 1.8 \text{ g/mL}$
- $1250 \text{ mL} \left(\frac{0.789 \text{ g}}{1 \text{ mL}}\right) = 986 \text{ g}$
- $72 \text{ g} \left(\frac{1 \text{ mL}}{13.6 \text{ g}}\right) = 5.3 \text{ mL}$
- $45 \text{ cm}^3 \left(\frac{10.5 \text{ g}}{1 \text{ cm}^3}\right) = 470 \text{ g}$
- $1.250 \text{ L} \left(\frac{1000 \text{ mL}}{1 \text{ L}}\right) \left(\frac{1.483 \text{ g}}{1 \text{ mL}}\right) = 1854 \text{ g}$
- $8850 \text{ mg} \left(\frac{1 \text{ g}}{1000 \text{ mg}}\right) \left(\frac{1 \text{ cm}^3}{2.70 \text{ g}}\right) = 3.28 \text{ cm}^3$
- $103.5428 \text{ g} \left(\frac{1 \text{ cm}^3}{8.96 \text{ g}}\right) = 11.6 \text{ cm}^3$
- $48.5 \text{ km} \left(\frac{1000 \text{ m}}{1 \text{ km}}\right) \left(\frac{10 \text{ dm}}{1 \text{ m}}\right) = 485,000 \text{ dm}$
- $425.87 \text{ g} \left(\frac{1000 \text{ mg}}{1 \text{ g}}\right) = 425,870 \text{ mg}$
- $435 \text{ mL} \left(\frac{1 \text{ L}}{1000 \text{ mL}}\right) \left(\frac{1,000,000 \text{ }\mu\text{L}}{1 \text{ L}}\right) = 435,000 \text{ }\mu\text{L}$
- $52 \text{ yds} \left(\frac{3 \text{ ft}}{1 \text{ yd}}\right) \left(\frac{12 \text{ in}}{1 \text{ ft}}\right) \left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right) \left(\frac{1 \text{ m}}{100 \text{ cm}}\right) \left(\frac{1 \text{ km}}{1000 \text{ m}}\right) = 0.048 \text{ km}$
- $19.45 \text{ lbs} \left(\frac{454 \text{ g}}{1 \text{ lb}}\right) \left(\frac{100 \text{ cg}}{1 \text{ g}}\right) = 8.83 \times 10^5 \text{ cg or } 883,000 \text{ cg}$
- $14 \text{ gal} \left(\frac{4 \text{ qts}}{1 \text{ gal}}\right) \left(\frac{946 \text{ mL}}{1 \text{ qt}}\right) \left(\frac{1 \text{ L}}{1000 \text{ mL}}\right) = 53 \text{ L}$
- $100.0 \text{ yds} \left(\frac{3 \text{ ft}}{1 \text{ yd}}\right) \left(\frac{12 \text{ in}}{1 \text{ ft}}\right) = 3.600 \times 10^3 \text{ in}$ (must put in sci notation to show 4 sig fig)
- $9452 \text{ c} \left(\frac{1 \text{ pt}}{2 \text{ c}}\right) \left(\frac{1 \text{ qt}}{2 \text{ pt}}\right) = 2363 \text{ qts}$