

2. $5.6792 \text{ m} + 0.6 \text{ m} + 4.33 \text{ m} = 10.6092 = \boxed{10.6 \text{ m}}$ (tenths place, units the same for addition)
3. $7.310 \text{ km} \div 5.70 \text{ km} = 1.2825 = \boxed{1.28}$ (3 sf, units cancel in division)
4. $? \text{ min} = 93 \times 10^6 \text{ mi} \times \frac{1609 \text{ m}}{1 \text{ mi}} \times \frac{1 \text{ s}}{3.00 \times 10^8 \text{ m}} \times \frac{1 \text{ min}}{60 \text{ s}} = 8.3132 = \boxed{8.3 \text{ min}}$ (2 sf)
5. $? \text{ km/hr} = \frac{1.0 \text{ mi}}{13 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{1609 \text{ m}}{1 \text{ mi}} \times \frac{1 \text{ km}}{1 \times 10^3 \text{ m}} = 7.426 = \boxed{7.4 \text{ km/hr}}$ (2 sf)
6. $? \text{ g Pb} = 6.0 \times 10^3 \text{ g blood} \times \frac{0.62 \text{ g Pb}}{1 \times 10^6 \text{ g blood}} = 0.00372 = \boxed{3.7 \times 10^{-3} \text{ g Pb}}$ (2 sf)
7. $? \text{ kg} = 25.4 \text{ mg} \times \frac{1 \times 10^{-3} \text{ g}}{1 \text{ mg}} \times \frac{1 \text{ kg}}{1 \times 10^3 \text{ g}} = \boxed{2.54 \times 10^{-5} \text{ kg}}$ (3 sf)
8. $? \text{ cm}^3 = \underbrace{(87.39 \text{ g} - 56.12 \text{ g})}_{31.27 \text{ g}} \times \frac{1 \text{ cm}^3}{0.9976 \text{ g}} = 31.3452 = \boxed{31.35 \text{ cm}^3}$ (hundredths place in subtraction, 4 sf)
9. $D_{\text{Ag}} = \frac{194.3 \text{ g}}{(260.5 \text{ mL} - 242.0 \text{ mL})} = \frac{194.3 \text{ g}}{18.5 \text{ mL}} = 10.503 = \boxed{10.5 \text{ g/mL}}$ (tenths place, 3 sf)
10. $V = 1.20 \times 10^3 \text{ g} \times \frac{1 \text{ cm}^3}{0.53 \text{ g}} = 2264 = \boxed{2.3 \times 10^3 \text{ cm}^3}$ (2 sf)
11. $? \text{ g Cu} = 5.11 \times 10^3 \text{ kg ore} \times \frac{34.63 \text{ kg Cu}}{100 \text{ kg ore}} \times \frac{1 \times 10^3 \text{ g}}{1 \text{ kg}} = 1.7696 \times 10^6 = \boxed{1.77 \times 10^6 \text{ g}}$ (3 sf, watch units!)
12. $? \text{ mm} = 3.636 \text{ g} \times \frac{1 \text{ cm}^3}{2.699 \text{ g}} \times \frac{1}{1.000 \text{ ft}^2} \times \left(\frac{1 \text{ ft}}{12 \text{ in}} \times \frac{1 \text{ in}}{2.54 \text{ cm}} \right)^2 \times \frac{10 \text{ mm}}{1 \text{ cm}} = 0.01540077 = \boxed{1.540 \times 10^{-2} \text{ mm}}$
(4 sf, watch units!)
13. $? \text{ yr} = 2.0 \times 10^{22} \text{ J} \times \frac{1 \text{ yr}}{1.8 \times 10^{20} \text{ J}} = 1.1111 \times 10^2 = \boxed{1.1 \times 10^2 \text{ yr}}$ (2 sf)
14. $? \# \text{ He atoms} = 1 \text{ cm} \times \frac{1 \times 10^{-2} \text{ m}}{1 \text{ cm}} \times \frac{1 \text{ pm}}{1 \times 10^{-12} \text{ m}} \times \frac{1 \text{ He atom}}{1 \times 10^2 \text{ pm}} = \boxed{1 \times 10^8 \text{ He atoms}}$
15. Mass # (A) = #p (Z) + #n = 26 + 28 = 54
16. Z = 29, #n = A - Z = 63 - 29 = 34, #e = Z = 29
17. Z = 74 → W (tungsten)

18. $Z = 35$; $\#e = Z - \text{charge} = 35 - (-1) = 36$

19. Ionic is a metal & a non-metal

20. $Z = A - \# \text{neutrons} = 127 - 74 = 53$ (I, iodine); $\text{Charge} = Z - \# \text{electrons} = 53 - 54 = -1$

21. As in #19, a metal and a (reactive) non-metal

22. Must be in O family (group 16)

23. $Z = \# \text{electrons} + \text{charge} = 36 + 1 = 37$ (Rb, rubidium)