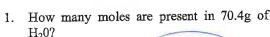
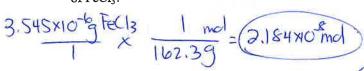
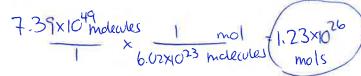
The Mole and Molarity



70.4g = 18.0g/mc/ 3.91 mol



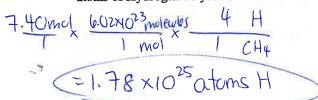
3. How many moles do you have if you have 7.39x10⁴⁹ molecules of Au₂O₃?



4. If you have 7.40 moles of CH₄, how many molecules do you have?



5. If you have 7.40 moles of CH₄, how many atoms of Hydrogen do you have?



6. How many molecules do you have in 39.4g of KMnO₄?

$$\frac{39.49 \times 10^{23} \text{ molecules}}{158.09} \times \frac{602 \times 10^{23} \text{ molecules}}{1 \text{ mol}}$$

$$= 1.50 \times 10^{23} \text{ molecules}$$

Name KEY

7. What mass would 3.56x10³⁰ atoms of Au have?

8. What would be the mass of 3 atoms of Uranium?

$$\frac{3 \text{ atoms}}{1 \text{ 6.02x10}^3 \text{ atom}} \times \frac{238.0 \text{ g}}{1 \text{ mot}}$$

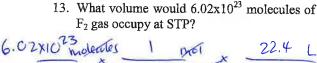
$$= 1.19 \times 10^{-21} \text{ g}$$

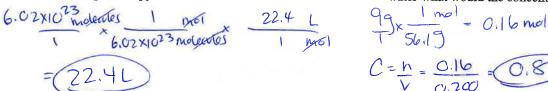
9. What volume would 2.3 moles of N₂ gass occupy at STP?

10. What volume would 30 moles of CH₄ occupy at STP?

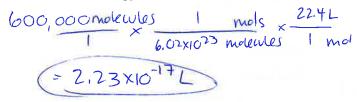
11. What volume would 39.4g of O₂ gas occupy

12. How many moles of Cl₂ gas would occupy a volume of 32.8L at STP?



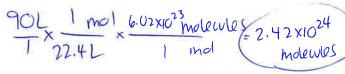


14. What volume would 600,000 molecules of N₂ occupy at STP?



15. If a container held 45L of O2 gas at STP, what mass would be present?

16. If a container held 90L of CH₄ gas at STP how many molecules would this be?



17. If 3.3 moles of NaCl were dissolved into 2L of water, what would the resulting concentration be?

$$C = \frac{N}{V} = \frac{3.3}{2} = 1.65 = 2M$$

18. If 3.70x10⁻² moles of NaOH were dissolved into 20.4L, what would the concentration

$$C = \frac{1}{V} = \frac{3.70 \times 10^{-2}}{20.4} = \frac{1.81 \times 10^{-3} \text{M}}{20.4}$$

19. If 9g of KOH was dissolved into 200ml of water what would the concentration be?

$$\frac{99 \times \frac{1 \text{ mol}}{56.19} = 0.16 \text{ mol}}{56.19} = 0.16 \text{ mol}$$

$$C = \frac{n}{V} = \frac{0.16}{0.200} = 0.819$$

20. If 30g of NaOH was dissolved into a bathtub containing 50L of water, what would the concentration be?

$$\frac{309 \times \frac{1 \text{ mol}}{40.09} = 0.75 \text{ mol}}{C = \frac{1}{V} = \frac{0.75}{50} = 1.5 \times 10^{-2} = \frac{2 \times 10^{-2} \text{ M}}{200}$$

21. What would the concentration be if 3.74x10²⁵ molecules of KCl was dissolved into 500 L of water?

$$3.74 \times 10^{25} \text{ molecules}$$
 1 mol = 62.1 mol
 $C = \frac{h}{V} = \frac{62.1}{500} = 0.124 + 0.1 \text{ M}$

22. If you had 5L of 6M HCl, how many moles of HCl would there be in total?

23. What mass of NaOH solid would you need to make 1L of 1M solution?

24. If you had 25 L of 5M H₂SO₄, how many molecules of H2SO4 would you have?

molecules of H2SO4 would you have?

$$N=CV = \frac{5M \times 75L}{1} = \frac{125 \text{ mol}}{1} = \frac{6.02 \times 10^{25} \text{ molecules}}{1}$$

$$= 7.5 \times 10^{25} \text{ molecules}$$

25. If you dissolved 23g of KMnO₄ into 1.6L of water, what would the concentration be?

$$\frac{239 \times 10^{-100}}{15809} = 0.15 \text{ mol} \quad C = \frac{1000}{100} = \frac{0.15}{1.100} = \frac{9.1 \times 10^{2}}{1.100}$$