

6I 1. 0.294 L ; 2.00 M soln (mol/L) [M] need
mol, L,
mol/L

① mol Ca_3N_2

② mass Ca_3N_2

$$V_{\text{soln}} \text{ Molarity} = \frac{\text{mol Ca}_3\text{N}_2}{V_{\text{soln}}} \cdot V_{\text{soln}}$$

$$\text{mol Ca}_3\text{N}_2 = \text{Molarity} \cdot V_{\text{soln}}$$

$$= 2.00 \frac{\text{mol}}{\text{L}} \cdot 0.294 \text{ L}$$

$$= 0.59 \text{ mol Ca}_3\text{N}_2$$

② $\text{MM Ca}_3\text{N}_2 = 148.26 \text{ g/mol}$

$$\frac{0.59 \text{ mol}}{1 \text{ mol}} \cdot 148.26 \text{ g}$$

$$= 87.47 \text{ g Ca}_3\text{N}_2$$



6I 4. 324.3 mL ; 4.00 M (mol/L) ; mol and mass $\text{Ba}(\text{OH})_2$
(1000 mL = 1 L)

$$\frac{324.3 \text{ mL}}{1000 \text{ mL}} = 0.3243 \text{ L}$$

$$\text{mol Ba}(\text{OH})_2 = 0.3243 \text{ L} \cdot 4.00 \frac{\text{mol}}{\text{L}}$$

$$= 1.30 \text{ mol Ba}(\text{OH})_2$$

(MM = 171.35 g/mol)

$$\frac{1.30 \text{ mol}}{1 \text{ mol}} \cdot 171.35 \text{ g}$$

$$= 222.76 \text{ g Ba}(\text{OH})_2$$



Equations

$$M = \frac{\text{mol}}{V_{\text{soln}}} \quad (1)$$

$$\text{mol} = M \cdot V_{\text{soln}} \quad (2)$$

$$V_{\text{soln}} = \frac{\text{mol}}{M} \quad (3)$$

mol; L; mol/L

Ex 1: 130.0g CaCl_2 ; $M = 2.00 \text{ mol/L}$ [Molarity]

Find V_{soln} : $V_{\text{soln}} = \frac{\text{mol CaCl}_2}{M} \quad (3)$

mass CaCl_2 (MM = 110.95 g/mol)

130.0g	1 mol
	110.95g

= 1.17 mol CaCl_2

$$V_{\text{soln}} = \frac{1.17 \text{ mol}}{2.00 \text{ mol/L}} = 0.59 \text{ L soln}$$

need 0.59 L of 2.00 M

Equations

$$M = \frac{\text{mol}}{V_{\text{soln}}} \quad (1)$$

$$\text{mol} = M \cdot V_{\text{soln}} \quad (2)$$

$$V_{\text{soln}} = \frac{\text{mol}}{M} \quad (3)$$

mol; L; mol/L

0.59 L of 2.00 M soln

0.59 L 2.00 M

0.30 L 4.00 M

1.18 L 1.00 M