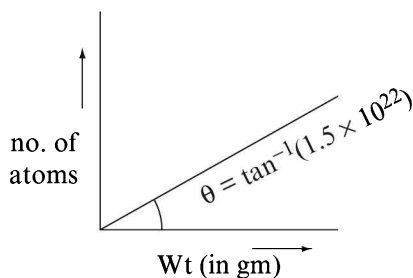


5. A sample of an ethanol–water solution has a volume of 55.0 cm^3 and a mass of 50.0 g . What is the percentage of ethanol (by mass) in the solution? Assume that there is no change in volume when the pure compounds are mixed. The density of ethanol is 0.80 g/cm^3 and that of water is 1.00 g/cm^3 .
- (a) 20% (b) 40%
(c) 60% (d) 45.45%
6. In a textile mill, a double-effect evaporator system concentrates weak liquor containing 4% (by mass) caustic soda to produce a lye containing 25% solids (by mass). What is the weight of water evaporated per 100 g feed in the evaporator?
- (a) 125.0 g (b) 50.0 g
(c) 84.0 g (d) 16.0 g
7. At 373 K and 1atm, if the density of liquid water is 1.0 g/ml and that of water vapour is 0.0006 g/ml , then the volume occupied by water molecules in 1 litre of steam at that temperature is
- (a) 6 ml (b) 60 ml
(c) 0.6 ml (d) 0.06 ml
8. A person needs on average of 2.0 mg of riboflavin (vitamin B_2) per day. How many grams of butter should be taken by the person per day if it is the only source of riboflavin? Butter contains $5.5 \mu\text{g}$ riboflavin per g.
- (a) 363.6 g
(b) 2.75 mg
(c) 11 g
(d) 19.8 g
9. Law of multiple proportions is not applicable for the oxide(s) of
- (a) carbon
(b) iron
(c) nitrogen
(d) aluminium
10. Two elements A and B combine to form compound X and Y. For the fix mass of A, masses of B combined for the compounds A and B are in 3:7 ratio. If in compound X, 4 g of A combines with 12 g B, then in compound Y, 8 g of A will combine with g of B.
- (a) 24 (b) 56
(c) 28 (d) 8

Atomic Mass

11. The mass of 3.2×10^5 atoms of an element is $8.0 \times 10^{-18} \text{ g}$. The atomic mass of the element is about ($N_A = 6 \times 10^{23}$)
- (a) 2.5×10^{-22}
(b) 15
(c) 8.0×10^{-18}
(d) 30
12. A graph is plotted for an element, by putting its mass on X-axis and the corresponding number of number of atoms on Y-axis. What is the atomic mass of the element for which the graph is plotted? ($N_A = 6.0 \times 10^{23}$)



- (a) 80
(b) 40
(c) 0.025
(d) 20