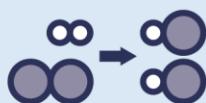


## Concentration Calculations

**Answer the following questions. Show your working**

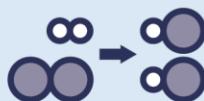
**Remember:**  $1 \text{ dm}^3 = 1\,000 \text{ cm}^3$

1. State the formula used to calculate concentration using mass and volume.
  2. Calculate the concentration (in g/dm<sup>3</sup>) of:
    - a. 40 g solute in 350 dm<sup>3</sup>
    - b. 100 g solute in 77 dm<sup>3</sup>
    - c. 0.08 g solute in 20 cm<sup>3</sup>
    - d. 90g solute in 780 cm<sup>3</sup>
  3. The mass of H<sub>2</sub>SO<sub>4</sub> is 32.5 g and the volume of the solution is 0.400 dm<sup>3</sup>. Calculate the concentration of the solution formed in g/dm<sup>3</sup>.

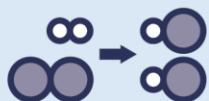




4. Explain what would happen to the concentration in question 2 if more water was added to the solution.
  
  
  
  
  
  
5. A  $750 \text{ cm}^3$  solution of sodium chloride contains 25 g of solute. Calculate the concentration of the solution.
  
  
  
  
  
  
6. What is the concentration of 2 g of copper chloride in  $1.5 \text{ dm}^3$  of solution?
  
  
  
  
  
  
7. State the formula used to calculate mass using concentration and volume.
  
  
  
  
  
  
8. Calculate the mass of solute in:
  - a.  $25 \text{ cm}^3$  of a  $2.3 \text{ g/dm}^3$  solution (remember to convert to  $\text{dm}^3$ )



- b.  $250 \text{ cm}^3$  of a  $71 \text{ g/dm}^3$  solution
- c.  $2.3 \text{ dm}^3$  of a  $61 \text{ g/dm}^3$  solution
9. A solution of sodium chloride has a concentration of  $400 \text{ g/dm}^3$ . Calculate the mass of sodium chloride in  $0.8 \text{ dm}^3$  of solution.
10. Explain what would happen to the mass of solute in question 6 if more water was added to the solution.
11. A solution of sodium chloride has a concentration of  $400 \text{ g/dm}^3$ . Calculate the mass of sodium chloride in  $400 \text{ cm}^3$  of solution.





12. A student pours  $0.2 \text{ dm}^3$  of hydrochloric acid into a beaker. The acid had a concentration of  $75 \text{ g/dm}^3$ . Calculate the mass of hydrochloric acid in the solution.

13. Using 83g of solute, how much water is needed to:

a. Make a  $34 \text{ g/dm}^3$  solution?

b. Make a  $0.1 \text{ g/dm}^3$  solution?

c. Make a  $83 \text{ g/dm}^3$  solution?

d. Make a  $79 \text{ g/dm}^3$  solution?

