Concentration of Solutions **Answers**

Vinegar is a solution of acetic acid and water.

The concentration of vinegar is typically 0.05g/cm^3, this means that in every cm^3 of vinegar there is 0.05g of acetic acid.

$$\text{concentration} = \frac{\text{mass}}{\text{volume}}$$

1. Calculate the mass of acetic acid in 100cm^3 of vinegar with a concentration of 0.05g/cm^3.

   concentration × volume = mass

   0.05 × 100 = 5g

   mass = **5**g

2. Explain what will happen to the concentration of the vinegar if 5g of acetic acid is added to 50cm^3 of water.

   The concentration will increase because there is more acetic acid per cm^3 of solution.

3. Calculate the mass of acetic acid in 50cm^3 of vinegar with a concentration of 0.0375g/cm^3.

   Give your answer to **2** significant figures.

   concentration × volume = mass

   0.0375 × 50 = 1.875g

   rounded to 2 significant figures is 1.9g

   mass = **1.9**g

4. Calculate the mass of acetic acid in 0.2dm^3 of vinegar with a concentration of 0.025g/cm^3.

   Convert 0.2dm^3 into cm^3 by multiplying by 1000.

   0.2dm^3 × 1000 = 200cm^3

   concentration × volume = mass

   0.025 × 200 = 5g

   mass = **5**g

5. Explain what will happen to the concentration of the vinegar if we increase the mass of acetic acid in the solution.

   The concentration will increase because there is more acetic acid per cm^3 of solution.