



# Concentration of Solutions **Answers**

Vinegar is a solution of acetic acid and water.

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

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

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

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

$$0.05 \times 100 = 5\text{g}$$

$$\text{mass} = \mathbf{5\text{g}}$$

2. Calculate the mass of acetic acid in  $50\text{cm}^3$  of vinegar with a concentration of  $0.0375\text{g/cm}^3$ .

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

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

$$0.0375 \times 50 = 1.875\text{g}$$

**rounded to 2 significant figures is 1.9g**

$$\text{mass} = \mathbf{1.9\text{g}}$$

3. Calculate the mass of acetic acid in  $0.2\text{dm}^3$  of vinegar with a concentration of  $0.025\text{g/cm}^3$ .

**Convert  $0.2\text{dm}^3$  into  $\text{cm}^3$  by multiplying by 1000.**

$$0.2\text{dm}^3 \times 1000 = 200\text{cm}^3$$

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

$$0.025 \times 200 = 5\text{g}$$

$$\text{mass} = \mathbf{5\text{g}}$$