Concentration of solutions

Chemistry calculations | AQA Combined Science 8464 and AQA GCSE Chemistry 8462 | 12 questions, 37 marks

GCSE science calculations

Scan for the solutions

Equations for this topic (cover this box to practise recalling them)

- concentration (g/dm^3) = $\frac{\text{mass of solute (g)}}{\text{volume (dm}^3\text{)}}$ learn this one

Name: _____ **Date:** _____ **Score:** _____ **/ 37**

1 Bilal dissolves 12 g of sodium chloride in water to make 0.50 dm^3 of solution.

Calculate the concentration of the solution in g/dm^3. (2 marks)

Answer _____

2 A technician at a school in Leeds makes 1.5 dm^3 of copper sulfate solution using 7.5 g of copper sulfate.

Calculate the concentration of the solution in g/dm^3. (2 marks)

Answer _____

3 A sports drink is made by dissolving 0.80 g of salt in water. The final volume of the drink is 0.25 dm^3.

Calculate the concentration of salt in the drink in g/dm^3. (2 marks)

Answer _____

4 Grace dissolves 4.0 g of citric acid in water and makes the solution up to 250 cm^3 in a volumetric flask.

Calculate the concentration of the solution in g/dm^3. (3 marks)

Answer _____

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5 A gardener in Swansea makes a concentrated plant feed by dissolving 1.75 g of potassium nitrate in water. The volume of the concentrated feed is 50 cm^3. She will dilute it before watering her plants.

Calculate the concentration of the concentrated plant feed in g/dm^3.

(3 marks)

Answer _____

6 Amara weighs some sodium carbonate into a beaker on a balance.

- Mass of the empty beaker = 48.20 g
- Mass of the beaker and sodium carbonate = 51.20 g

She dissolves all of the sodium carbonate and makes the solution up to 200 cm^3.

Calculate the concentration of the solution in g/dm^3.

(3 marks)

Answer _____

7 Mr Novak needs 500 cm^3 of sodium hydroxide solution with a concentration of 40 g/dm^3 for a class practical.

Calculate the mass of sodium hydroxide he must dissolve.

(3 marks)

Answer _____

8 Hamza has 9.0 g of magnesium sulfate. He wants to make a solution with a concentration of 30 g/dm^3.

Calculate the volume of solution he should make, in cm^3.

(3 marks)

Answer _____

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9 A nurse at a hospital in Glasgow has a glucose solution with a concentration of 18 g/dm^3. Calculate the volume of this solution that contains 2.5 g of glucose. Give your answer in cm^3 to 2 significant figures.

(3 marks)

Answer _____

10 Elif has 100 cm^3 of a food dye solution with a concentration of 60 g/dm^3. She adds 200 cm^3 of water and stirs.

Calculate the concentration of the diluted solution in g/dm^3. Show your working.

(4 marks)

Answer _____

11 Two bottles of salt solution are on a shelf in a school lab.

- Bottle A: 5.0 g of salt in 125 cm^3 of solution
- Bottle B: 18 g of salt in 0.40 dm^3 of solution

a. Calculate the concentration of the solution in bottle A in g/dm^3.

b. Calculate the concentration of the solution in bottle B in g/dm^3.

c. Which bottle holds the more concentrated solution? Show your working.

(4 marks)

Answer _____

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12 Oliver mixes two sugar solutions in a jug.

- 150 cm^3 of a solution with a concentration of 24 g/dm^3
- 80 cm^3 of a solution with a concentration of 50 g/dm^3

Calculate the concentration of sugar in the mixture in g/dm^3.
Give your answer to 2 significant figures. Show your working.

(5 marks)

Answer _____

End of questions | Total 37 marks

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