If 12g of sodium hydroxide was dissolved in 100cm^3 of water. What would be the concentration in mol /dm^3, of the solution?

Solution:

Sodium hydroxide formula is NaOH. Let's calculate its molar mass M:

M (NaOH) = 23+16+1=40 grams per mole.

12 grams of NaOH will contain such number of moles:

$$n\ (NaOH) = \frac{m(NaOH)}{M(NaOH)} = \frac{12\ g}{40\ g/mol} = 0.3\ mol;$$

According to formula of molar concentration:

$$C_M(NaOH) = \frac{n\ (NaOH)}{V} = \frac{0.3\ mol}{0.1\ dm^3} = 3\ mol/dm^3;$$

(Where V - volume of soltion; 1 dm^3= 1000 cm^3, so 100 cm^3 = 0.1 dm^3)

Answer:

Concentration of solution would be **3 mol/dm^3**.