

## Answer on question #41841, Chemistry, Physical Chemistry

### Question.

What is the molarity of an 86.0 mL ethanol solution containing 3.17 g of ethanol?

### Solution.

Molar concentration,  $c_i$  is defined as the amount of a constituent  $n_i$  (usually measured in moles – hence the name) divided by the volume of the mixture  $V$ :

$$c_i = \frac{n_i}{V}$$

$$n_i = \frac{m_i}{M_i}$$

Where  $m_i$  - mass of the sample and  $M_i$  is molar mass of the substance.

Let's calculate the amount of ethanol:

$$n_i = \frac{3.17}{46.07} = 0.0688 \text{ mol}$$

Molar concentration of ethanol is:

$$c_i = \frac{0.0688}{0.086} = 0.8 \frac{\text{mol}}{\text{L}}$$

**Answer:** 0.8 mol/L