Answer on Question #62316 - Chemistry - General Chemistry

Question:

If 60.0 grams of NaOH is dissolved in enough water to make a 250. mL solution, what is the molarity of the solution?

Solution:

1) Molarity of solution shows amount of moles of substance in 1 L of solution.
   If 250 mL of solution contains 60.0 g of NaOH than 1 L of such solution would contain 60.0 g * (1 L/0.25 L) = 240.0 g of NaOH.
2) Calculate how many moles are in 240.0 g of NaOH:
   1 mole of NaOH = 23.0+16.0+1.0 = 40.0 g;
   240.0 g of NaOH = 240.0/40.0 = 6.0 moles.
3) We found that 1 L of the given solution would contain 6.0 moles of NaOH. So the molarity of the solution is 6.0 mol/L.

Answer:

The molarity of the NaOH solution is 6.0 mol/L.