Answer on the question #60798, Chemistry / Physical Chemistry

Question:
Convert 20g NaOH in 500 centi meter cube solution into MOLARITY.

Solution:
By definition, molarity is the ratio of the number of the moles of the solute to the volume of solution.

The number of the moles of sodium hydroxide is:
$$n(NaOH) = \frac{m(NaOH)}{M(NaOH)} = \frac{20\ g}{39.997 g\ mol^{-1}} = 0.500\ mol$$
The volume of the solution is usually expressed in liters. One centi meter cube is equal to one milliliter. Then, 500 centi meter cube is 0.500 liter.

Thus, we can calculate the molarity:
$$c(NaOH) = \frac{n(NaOH)}{V(solution)} = \frac{0.500\ mol}{0.500\ L} = 1 \frac{mol}{L}$$
Answer: 1 mol/L