Question #84834, Chemistry / General chemistry

You measure 3.10 mL of a 50% NaOH solution by weight (its density is 1.53 g mL-1) and dilute it to 500 mL total volume. What is the concentration of this NaOH solution? Write your answer to four decimal places (X.XXXX).

Solution

$m(NaOH) = V(NaOH)_{sol} * d * w = 3.10 * 1.53 * 0.5 = 2,3715$ (g)

$M(NaOH) = 23 + 16 + 1 = 40$ (g/mol)

$n(NaOH) = m / M = 2.3715 / 40 = 0,0593$ (mol)

$c(NaOH) = n / V = 0,0593 / 0.5 = 0,1186$ (M)

Answer

$c(NaOH) = 0,1186$ M