QUESTION:
Calculate the molar concentration of each ion (Na+ and PO4 3-) in a aqueous Na3PO4 solution when 2.0 g of Na3PO4 is dissolved in water so that the final volume of the solution is 150 ml.

SOLUTION:
$$n_{Na_3PO_4} = \frac{m_{Na_3PO_4}}{M_{Na_3PO_4}} = \frac{2.0\ g}{164\ g/mol} = 0.012\ mol$$
$V_{solution}$ = 0.15 L
$$C_{Na_3PO_4} = \frac{n_{Na_3PO_4}}{V_{solution}} = \frac{0.012\ mol}{0.15\ L} = 0.081\ \frac{mol}{L}$$

Assume that Na_3PO_4 is completely dissociated.

$$C_{Na^+} = 3C_{Na_3PO_4} = 0.244\ \frac{mol}{L}$$
$$C_{PO_4^{3-}} = C_{Na_3PO_4} = 0.081\ \frac{mol}{L}$$