Calculate ions in NaCl

Calculate the number of ions present in 0.75 mol NaCl.

To calculate the number of ions present in 0.75 mol NaCl, follow these steps:

1. **Determine the number of NaCl units:**
   - 1 mole of NaCl contains 6.022×10^{23} formula units (Avogadro's number).
   - Therefore, 0.75 moles of NaCl contains:

$$0.75 \text{ mol} \times 6.022 \times 10^{23} \text{ formula units/mol} = 4.5165 \times 10^{23} \text{ formula units}$$

2. **Determine the number of ions:**
   - Each formula unit of NaCl dissociates into 1 Na^+ ion and 1 Cl^- ion.
   - Hence, each NaCl formula unit provides 2 ions.
   - Therefore, the total number of ions in 0.75 moles of NaCl is:

$$4.5165 \times 10^{23} \text{ formula units} \times 2 \text{ ions/formula unit} = 9.033 \times 10^{23} \text{ ions}$$

So, the number of ions present in 0.75 mol NaCl is 9.033×10^{23}.