

Solutions

Each answer shows the steps, then the **result**.

2.1

- Many strong electrostatic attractions between oppositely charged ions must be overcome

2.2

- In the solid the ions are fixed in the lattice and cannot move; when molten the ions are free to move and carry charge

2.3

- Larger ion charges; smaller ion sizes

3.1 B

- when molten or dissolved, so the ions can move

3.2

(a)

- MgO — its ions have charges $2+/2-$ vs $1+/1-$ for NaF, giving a much larger lattice energy

(b)

- MgO

3.3

- Shifting a layer brings ions of the **same** charge next to each other; they repel, so the crystal splits