

Solutions

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

2.1

- it increases down the group

2.2

- it decreases down the group

3.1 B

- The small Mg^{2+} has a high charge density and polarises the carbonate more

3.2 B

- The larger cation polarises the anion less, so the nitrate is more stable

3.3

- down the group the cation gets larger, so its charge density falls; it polarises/distorts the large nitrate ion less; so the N–O bonds are weakened less and a higher temperature is needed to decompose it

3.4

- down the group the cation is larger; so both the lattice energy (ions further apart) and the hydration enthalpy (lower charge density, weaker attraction to water) become less exothermic