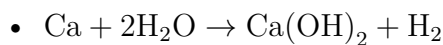


Solutions

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

2.1



2.2

- reactivity increases down the group; the atoms are larger, so the two outer electrons are lost more easily

3.1 D

- Thermal stability increases down the group, so BaCO_3 is most stable

3.2 B

- Sulfate solubility decreases down Group 2

3.3

(a)



(b)

- the Ba^{2+} ion is larger (lower charge density) than Mg^{2+} ; it polarises/distorts the carbonate ion less; so the C–O bonds are weakened less and a higher temperature is needed to decompose it

3.4

- reactivity increases down the group; larger atoms hold their outer electrons less tightly, so they react faster with water