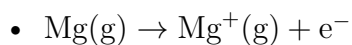


Solutions

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

2.1



2.2

- any two: nuclear charge; atomic radius; shielding; (spin-pair repulsion)

3.1 B

- The electron is pulled from a more positive ion, needing more energy

3.2 B

- The paired 3p electron in sulfur is easier to remove (spin-pair repulsion)

3.3

- down the group each element has more shells, so more shielding and a larger atomic radius; the outer electron is held less tightly, so it is easier to remove

3.4

- Group 2; there is a large jump between the 2nd and 3rd ionisation energies, showing 2 easily-removed outer electrons before reaching a full inner shell