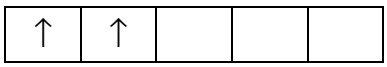
- Compounds of *d*-block elements are frequently paramagnetic. Using the box notation to represent atomic orbitals, account for this property in compounds of V^{3+}. **1**

Paramagnetism is associated with the presence of unpaired electron spins. As vanadium is in group 5, V^{3+} has two electrons in its 3d orbitals. These electrons occupy separate orbitals with the same spin to reduce the repulsion between them:



3*d*

V^{3+} thus has two unpaired electrons and is paramagnetic.