

- Titanium has three common oxidation states, +II, +III and +IV. Using the box notation to represent atomic orbitals, predict whether compounds of Ti^{2+} , Ti^{3+} and Ti^{4+} would be paramagnetic or diamagnetic.

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- Provide a systematic name for the complex $\text{trans}[\text{NiBr}_2(\text{en})_2]$ and draw its structure. Is this complex chiral? Explain your reasoning.

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en = ethylenediamine = ethane-1,2-diamine