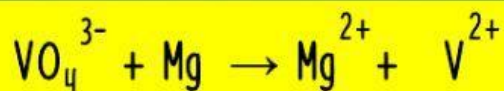
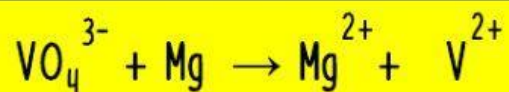


Balance Redox Reaction -In Acidic Medium



1. Divide the equation into two	$\boxed{} \rightarrow \text{Mg}^{2+}$ $\text{VO}_4^{3-} \rightarrow \text{V}^{2+}$
2. Balance the element OTHER than oxygen and hydrogen	$\boxed{} \rightarrow \text{Mg}^{2+}$ $\text{VO}_4^{3-} \rightarrow \text{V}^{2+}$
3. Balance the O atom by adding H ₂ O	$\boxed{} \rightarrow \text{Mg}^{2+}$ $\text{VO}_4^{3-} \rightarrow \text{V}^{2+} + \boxed{} \text{H}_2\text{O}$
4. Balance the H atom by adding H ⁺	$\boxed{} \rightarrow \text{Mg}^{2+}$ $\boxed{} \text{H}^+ + \text{VO}_4^{3-} \rightarrow \text{V}^{2+} + \boxed{} \text{H}_2\text{O}$
5. Balance the charge	$\boxed{} \rightarrow \text{Mg}^{2+} + \boxed{} \text{e}^-$ $\boxed{} \text{e}^- + \boxed{} \text{H}^+ + \text{VO}_4^{3-} \rightarrow \text{V}^{2+} + \boxed{} \text{H}_2\text{O}$
6. Make number of electron at both side equal	$(\boxed{} \rightarrow \text{Mg}^{2+} + \boxed{} \text{e}^-) \times \boxed{}$ $(\boxed{} \text{e}^- + \boxed{} \text{H}^+ + \text{VO}_4^{3-} \rightarrow \text{V}^{2+} + \boxed{} \text{H}_2\text{O}) \times \boxed{}$
7. Add the two half-reactions, cancel anything that same on the both side	$\boxed{} \text{e}^- + \boxed{} \text{H}^+ + \boxed{} \text{VO}_4^{3-} \rightarrow \boxed{} \text{Mg}^{2+} + \boxed{} \text{e}^- + \boxed{} \text{V}^{2+} + \boxed{} \text{H}_2\text{O}$ $\boxed{} \text{H}^+ + \boxed{} \text{Mg} + \boxed{} \text{VO}_4^{3-} \rightarrow \boxed{} \text{Mg}^{2+} + \boxed{} \text{V}^{2+} + \boxed{} \text{H}_2\text{O}$
8. Check the equation (electron balance?)	

Balance Redox Reaction -In Acidic Medium



Balance equation as in acidic first, then continue with step 9.

9. Add OH^- at both side, equal to H^+



10. Combine (OH^-) and (H^+) to form H_2O



11. Cancel any H_2O that are equal at both side

