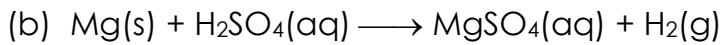
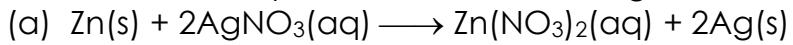


**Quiz (Writing Ionic Equations)**

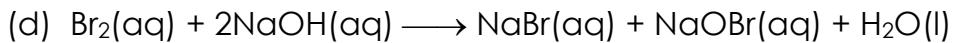
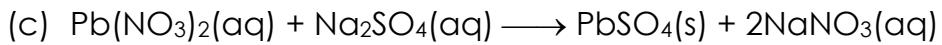
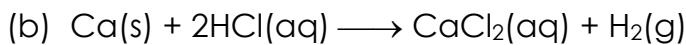
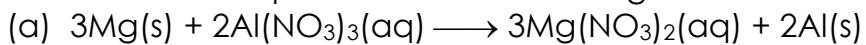
1. Write the ionic equations for the following reactions.



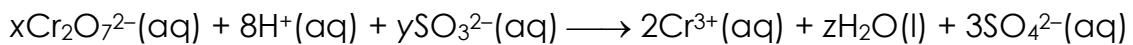
2. Find the values of y and z in the ionic equation:



3. Write the ionic equations for the following reactions.



4. What are the values of x, y and z in the following ionic equation?



### Suggested Answer

1. (a)  $\text{Zn(s)} + 2\text{Ag}^+(\text{aq}) \longrightarrow \text{Zn}^{2+}(\text{aq}) + 2\text{Ag(s)}$   
(b)  $\text{Mg(s)} + 2\text{H}^+(\text{aq}) \longrightarrow \text{Mg}^{2+}(\text{aq}) + \text{H}_2(\text{g})$
2. Since there are 6 oxygen atoms on the left-hand side and 6 oxygen atoms on the right-hand side, the stoichiometric coefficient for  $\text{ClO}_3^-$  must be 1. An ionic equation must be balanced with respect to ionic charges.

Net charge of reactants = -6 = net charge of products

$$\therefore -6 = z(-1) + (-1) \quad \Rightarrow \quad z = 5$$

An ionic equation must also be balanced with respect to number of atoms of any kind.

Consider chlorine atoms, number of Cl atoms on the right-hand side =  $5 + 1 = 6$

$$\begin{aligned} \therefore \text{number of Cl atoms on the left-hand side} &= 6 \\ \Rightarrow y &= 3 \end{aligned}$$

3. (a)  $3\text{Mg(s)} + 2\text{Al}^{3+}(\text{aq}) \longrightarrow 3\text{Mg}^{2+}(\text{aq}) + 2\text{Al(s)}$   
(b)  $\text{Ca(s)} + 2\text{H}^+(\text{aq}) \longrightarrow \text{Ca}^{2+}(\text{aq}) + \text{H}_2(\text{g})$   
(c)  $\text{Pb}^{2+}(\text{aq}) + \text{SO}_4^{2-}(\text{aq}) \longrightarrow \text{PbSO}_4(\text{s})$   
(d)  $\text{Br}_2(\text{aq}) + 2\text{OH}^-(\text{aq}) \longrightarrow \text{Br}^-(\text{aq}) + \text{OBr}^-(\text{aq}) + \text{H}_2\text{O(l)}$
4.  $x = 1; y = 3; z = 4$