Question 1 (3 points) Give the oxidation numbers for the elements in the reaction below given that the oxidation number for oxygen is -2 and identify the reducing reagent

\[
\begin{array}{cccccc}
\text{ox} & +2 & +5 & -2 & 0 & +2 & +5 & -2 & 0 \\
\text{Zn(NO}_3\text{)}_2(aq) & + & \text{Pb(s)} & \rightarrow & \text{Pb(NO}_3\text{)}_2(aq) & + & \text{Zn(s)}
\end{array}
\]

Pb is going from an oxidation number of 0 to +2 so it is getting more positive making it oxidized and therefore the reducing agent.

Question 2 (2 points) What is the concentration 10.00 mL of a NaOH aqueous solution that is neutralized with 15 mL of a 0.4M HCl solution?

\[
(\#H)(\text{MH})(\text{VH}) = (\#\text{OH})(\text{MOH})(\text{VOH})
\]

\[
(1)(0.4 \text{ M})(15 \text{ mL}) = (1)(\text{MOH})(10 \text{ mL})
\]

\[
\text{MOH} = 0.6 \text{ M}
\]