Quiz 3

1. The following reaction is a redox reaction. Throughout the reaction, the charge on the chlorine atoms remains the same, so the chlorine atoms are not participating in the redox reaction.

$$2 \operatorname{FeCl}_3(aq) + 3 \operatorname{Mg(s)} \longrightarrow 2 \operatorname{Fe(s)} + 3 \operatorname{MgCl}_2(aq)$$

- a. Which element is losing electrons.
- b. Which element is gaining electrons.
- c. Describe in words what is happening.

d. A schematic diagram is drawn below. Add a wire and show the direction that the electrons would flow through the wire if a battery was made using this reaction.

2. For each of the reactions below, determine whether the reaction is a redox reaction (label the reaction "redox" or "not redox").

$$2 \text{ HBr}(aq) + \text{Ca}(OH)_2(s) \longrightarrow 2 \text{ H}_2O(l) + \text{CaBr}_2(aq)$$

$$2 \text{ HBr(aq)} + \text{Ca(s)} \longrightarrow \text{H}_2(g) + \text{CaBr}_2(aq)$$

$$Pb(NO_3)_2(aq) + 2 NaCl(aq) \longrightarrow PbCl_2(s) + 2 NaNO_3(aq)$$

$$PbCl_2(s) + 2 Na(s) \longrightarrow 2 NaCl(s) + Pb(s)$$