

Worksheet: Oxidation Reduction

Key

1. Indicate whether the following is an oxidation or reduction reaction:

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|---|------------------|
| a. $\text{O}_2(\text{g}) + 4\text{e}^- \rightarrow 2\text{O}^{2-}(\text{aq})$ | <u>reduction</u> |
| b. $\text{Al}(\text{s}) \rightarrow \text{Al}^{3+}(\text{aq}) + 3\text{e}^-$ | <u>oxidation</u> |
| c. $2\text{Li}(\text{s}) \rightarrow 2\text{Li}^+(\text{aq}) + 2\text{e}^-$ | <u>oxidation</u> |
| d. $\text{Cu}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Cu}(\text{s})$ | <u>reduction</u> |

2. In the following reactions, identify which reactant is oxidized and which is reduced:

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|--|--|
| a. $2\text{Mg}(\text{s}) + \text{O}_2(\text{g}) \rightarrow 2\text{MgO}(\text{s})$ | |
| oxidized <u>Mg</u> | reduced <u>O_2</u> |
| b. $2\text{Fe}_2\text{O}_3(\text{s}) \rightarrow 4\text{Fe}(\text{s}) + 3\text{O}_2(\text{g})$ | |
| oxidized <u>O^{2-}</u> | reduced <u>Fe^{3+}</u> |
| c. $\text{Cl}_2(\text{g}) + 2\text{KI}(\text{aq}) \rightarrow \text{I}_2(\text{g}) + 2\text{KCl}(\text{aq})$ | |
| oxidized <u>I^-</u> | reduced <u>Cl_2</u> |
| d. $2\text{PbO}(\text{s}) \rightarrow 2\text{Pb}(\text{s}) + \text{O}_2(\text{g})$ | |
| oxidized <u>O^{2-}</u> | reduced <u>Pb^{2+}</u> |