

Oxidation-reduction Practice Worksheet

1) Explain the meaning of each of the following.

Oxidation	
Reduction	
Oxidizing Agent	
Reducing Agent	

2) Explain the meaning of each of the following.

1. can be an oxidizing agent for Pb but not Sn²⁺	
2. can be reduced by I⁻ but not by Fe²⁺	
3. can be oxidized by I² but not acidic SO₄²⁻	
4. can oxidize Co and reduce H⁺	

3) Identify each of the following reactions as oxidation or reduction.

Cr³⁺(aq) + e⁻ → Cr²⁺(aq)	
Li(s) → Li⁺(aq) + e⁻	
S(s) + 2e⁻ → S²⁻(aq)	
Sn²⁺(aq) → Sn⁴⁺(aq) + 2e⁻	

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Answers

Oxidation	a half-reaction that involves the loss of electron(s)
Reduction	a half-reaction that involves the gain of electron(s)
Oxidizing Agent	a species that causes another to be oxidized while it is reduced
Reducing Agent	a species that causes another to be reduced while it is oxidized

1. can be an oxidizing agent for Pb but not Sn²⁺	$S(s) + 2H^+, H^+$
2. can be reduced by I⁻ but not by Fe²⁺	$O_2(g) + 2H^+, MnO_4^-(aq)$
3. can be oxidized by I² but not acidic SO₄²⁻	$Cu(s), S(s)$
4. can oxidize Co and reduce H⁺	none

$Cr^{3+}(aq) + e^- \rightarrow Cr^{2+}(aq)$	Reduction
$Li(s) \rightarrow Li^+(aq) + e^-$	Oxidation
$S(s) + 2e^- \rightarrow S^{2-}(aq)$	Reduction
$Sn^{2+}(aq) \rightarrow Sn^{4+}(aq) + 2e^-$	Oxidation