# What are Oxidation-Reduction Reactions?

Worksheet

Oxidation is losing electrons; reduction is gaining electrons. In redox reactions, a reducing agent (donates e) and oxidizing agent (accepts e) exchange electrons. Every redox has both.

**@text{Oxidation state} = @text{(# protons)} - @text{(# electrons for atc**

## Questions

1. In Zn + Cu Zn + Cu, Zn is

A) reduced
B) oxidized
C) both
D) neither

2. Oxidizing agent is the species that

A) loses e
B) gains e
C) donates O
D) always oxygen

3. Oxidation state of O in CO?

A) 0
B) 1
C) 2
D) +2

4. In combustion, fuel is

A) oxidized
B) reduced
C) neither
D) source of O

5. In Fe + O FeO, identify what is oxidized and reduced.

6. Assign oxidation states: HSO.

7. Combustion: C + O CO. Redox?

8. Define: What is oxidation?

9. Define: What is reduction?

10. Define: Oxidizing agent?

# Answer Key

1. B) oxidized - Zn loses electrons (0 +2) - oxidized.
2. B) gains e - Oxidizing agent accepts e (is reduced).
3. C) 2 - O is usually 2; C must be +2 to balance.
4. A) oxidized - Fuel loses e to O - oxidized (is the reducer).
5. Fe: 0 +3 (loses 3e) = oxidized O: 0 2 (gains 2e) = reduced Fe is the reducing agent; O is the oxidizing agent.
6. H: +1 (always in compounds) S: +6 (must balance: +12 + S + (2)4 = 0) O: 2 (usually) Check: +2 + 6 8 = 0
7. C: 0 +4 (oxidized) O: 0 2 (reduced) Redox; C is reducer, O is oxidizer.
8. Loss of electrons (or increase in oxidation state).
9. Gain of electrons (or decrease in oxidation state).
10. Species that accepts electrons (is reduced).