

Name:

Section:

Date:

5.8 HONORS CLASS WORKSHEET – SIMPLE REDOX REACTIONS

This worksheet builds directly onto Worksheet 5.6, which was the work for March 18th.

Questions 1 and 2 are a repeat of the first two questions on Worksheet 5.6:

- you may copy your answers from 5.6 into this worksheet or look at the answer sheet on the website and write those answers in here
- make sure you show your arrows, subscripts and superscripts correctly; I have shown you how to do this in the video

1. Explain the meaning of the following terms:

OXIDATION	loss of electrons
REDUCTION	gain of electrons
REDOX REACTION	transfer of electrons

2. Write half-equations to show the following changes, and indicate whether they represent oxidation or reduction:

a	Mg losing two electrons	$\text{Mg} \rightarrow \text{Mg}^{2+} + 2\text{e}^{-}$	oxidation
b	Cl_2 turning into 2Cl^{-}	$\text{Cl}_2 + 2\text{e}^{-} \rightarrow 2\text{Cl}^{-}$	reduction
c	Sn^{4+} gaining two electrons	$\text{Sn}^{4+} + 2\text{e}^{-} \rightarrow \text{Sn}^{2+}$	reduction
d	Fe^{2+} losing one electron	$\text{Fe}^{2+} \rightarrow \text{Fe}^{3+} + \text{e}^{-}$	oxidation
e	2I^{-} becoming I_2	$2\text{I}^{-} \rightarrow \text{I}_2 + 2\text{e}^{-}$	oxidation
f	O atoms in O_2 each gaining two electrons	$\text{O}_2 + 4\text{e}^{-} \rightarrow 2\text{O}^{2-}$	reduction
g	Ag^{+} becoming Ag	$\text{Ag}^{+} + \text{e}^{-} \rightarrow \text{Ag}$	reduction

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3. Combine the following pairs of half-equations from question 2 to make a redox reaction:

(i)	Equations a and b	
	Answer:	$\text{Mg} \rightarrow \text{Mg}^{2+} + 2\text{e}^-$ $\text{Cl}_2 + 2\text{e}^- \rightarrow 2\text{Cl}^-$ $\text{Mg} + \text{Cl}_2 \rightarrow \text{Mg}^{2+} + 2\text{Cl}^-$
(ii)	$\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$ (ox) and $\text{Fe}^{3+} + \text{e}^- \rightarrow \text{Fe}^{2+}$ (red)	
	Answer:	$\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$ (ox) $2\text{Fe}^{3+} + 2\text{e}^- \rightarrow 2\text{Fe}^{2+}$ (red) (must multiply half-equation by 2 to cancel e^-) $\text{Zn} + 2\text{Fe}^{3+} \rightarrow \text{Zn}^{2+} + 2\text{Fe}^{2+}$
(iii)	Equations b and e	
	Answer:	$\text{Cl}_2 + 2\text{e}^- \rightarrow 2\text{Cl}^-$ $2\text{I}^- \rightarrow \text{I}_2 + 2\text{e}^-$ $\text{Cl}_2 + 2\text{I}^- \rightarrow 2\text{Cl}^- + \text{I}_2$
(iii)	Equations a and g	
	Answer:	$\text{Mg} \rightarrow \text{Mg}^{2+} + 2\text{e}^-$ $2(\text{Ag}^+ + \text{e}^- \rightarrow \text{Ag})$ (must multiply half-equation by 2 to cancel e^-) $\text{Mg} + 2\text{Ag}^+ \rightarrow \text{Mg}^{2+} + 2\text{Ag}$
(iii)	Equations e and f	
	Answer:	$2(2\text{I}^- \rightarrow \text{I}_2 + 2\text{e}^-)$ (must multiply half-equation by 2 to cancel e^-) $\text{O}_2 + 4\text{e}^- \rightarrow 2\text{O}^{2-}$ $4\text{I}^- + \text{O}_2 \rightarrow 2\text{I}_2 + 2\text{O}^{2-}$