

AP CHEMISTRY

TOPIC 2: STOICHIOMETRY, PART II (EVEN MORE PRACTICE)

Day 29: (3)

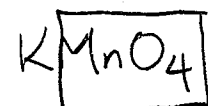
Oxidation / Reduction Equations:

- Oxidation Numbers
- Acid Redox

LEO says GER

1) Determine the **oxidation number** for each ELEMENT in the chemical formula

a) KMnO_4



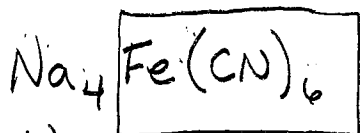
$+1 \quad -1$
 \curvearrowright

$\text{Mn} : (1)$	$+7 = +7$
$\text{O} : (4)$	$-2 = -8$
-1	

OXIDATION #'S

$\text{K} : (1)$	$+1 = +1$
$\text{Mn} : (1)$	$+7 = +7$
$\text{O} : (4)$	$-2 = -8$
0	

b) $\text{Na}_4\text{Fe}(\text{CN})_6$



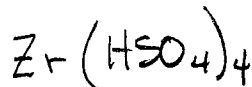
$\text{Na} : +1$

$\text{Fe} : (1)$	$+2 = +2$
$\text{CN}^- : (6)$	$-1 = -6$
-4	

$\text{C} : (1)$	$+2 = +2$
$\text{N} : (1)$	$-3 = -3$
-1	

$\text{Na} = +1$
 $\text{Fe} = +2$
 $\text{C} = +2$
 $\text{N} = -3$

c) $\text{Zr}(\text{HSO}_4)_4$



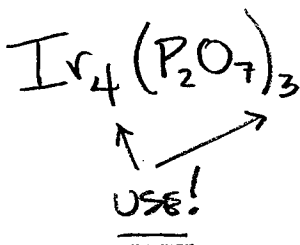
$+1$
 \downarrow
 HSO_4^-

$\text{H} : (1)$	$+1 = +1$
$\text{S} : (1)$	$+6 = +6$
$\text{O} : (4)$	$-2 = -8$
-1	

$\text{Zr} : (1)$	$+4 = +4$
$\text{HSO}_4^- : (4)$	$-1 = -4$
0	

$\text{Zr} : +4$
 $\text{H} : +1$
 $\text{S} : +6$
 $\text{O} : -2$

d) $\text{Ir}_4(\text{P}_2\text{O}_7)_3$

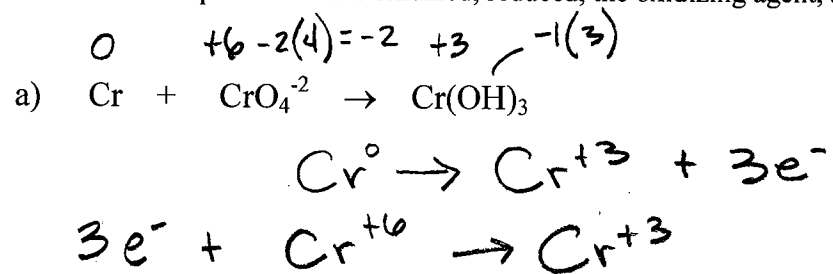


$\text{Ir} : (4)$	$+3 = +12$
$\text{P}_2\text{O}_7^{-4} : (3)$	$-4 = -12$
0	

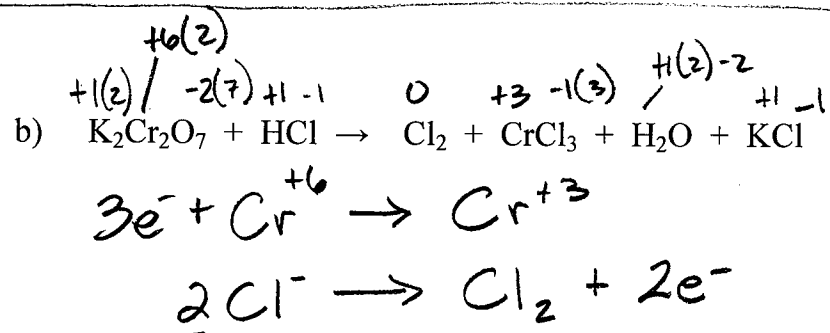
$\text{P} : (2)$	$+5 = +10$
$\text{O} : (7)$	$-2 = -14$
-4	

$\text{Ir} = +4$
 $\text{P} = +5$
 $\text{O} = -2$

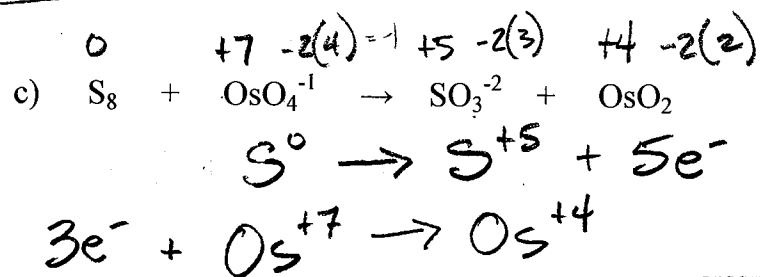
2) Determine the species that are oxidized, reduced, the oxidizing agent, and reducing agent.



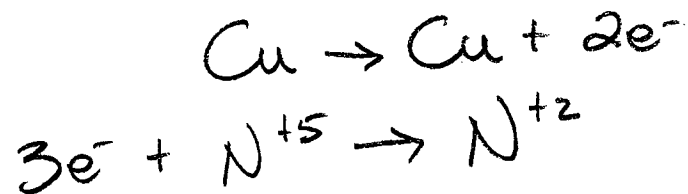
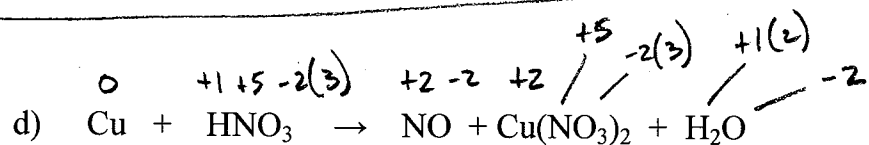
OX: Cr^0
 REDUCED: Cr^{+6}
 OX AGENT: CrO_4^{2-}
 RED AGENT: Cr



OX: Cl^-
 REDUCED: Cr^{+6}
 OX AGENT: $\text{K}_2\text{Cr}_2\text{O}_7$
 RED AGENT: HCl

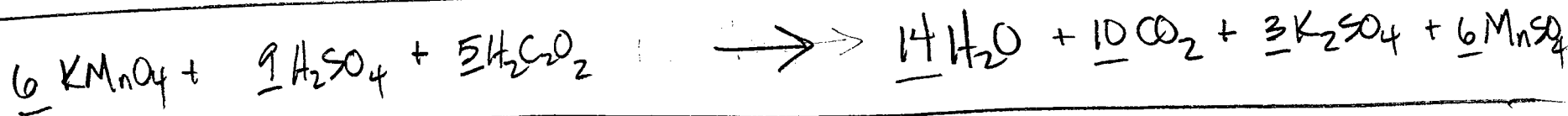
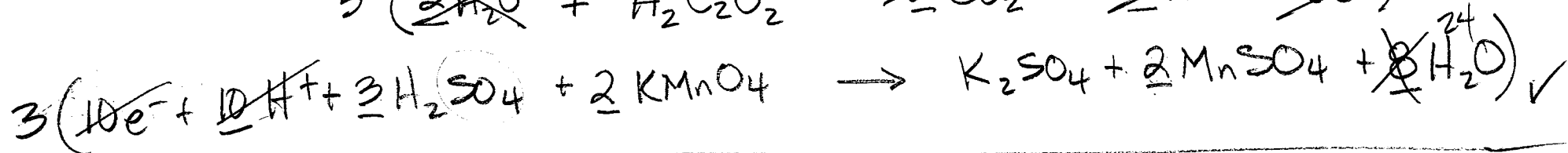
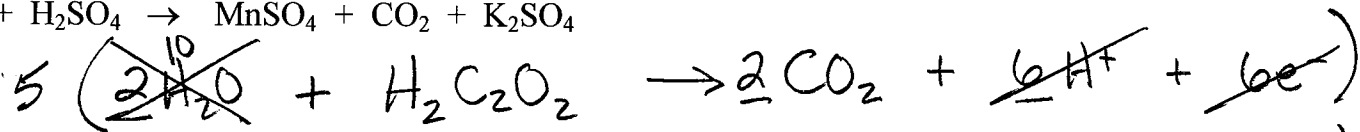
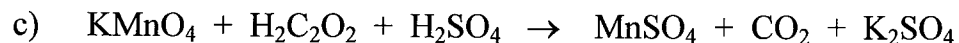
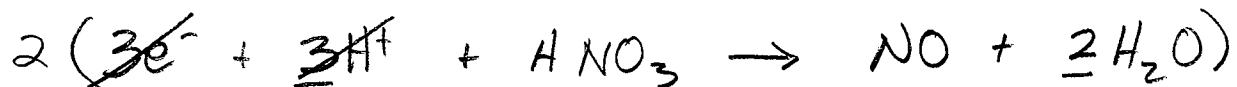
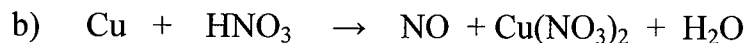
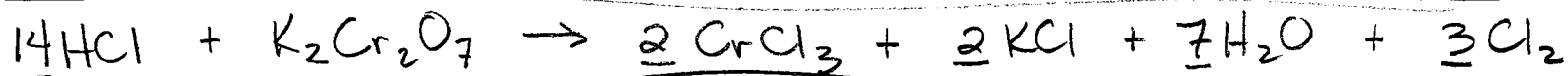
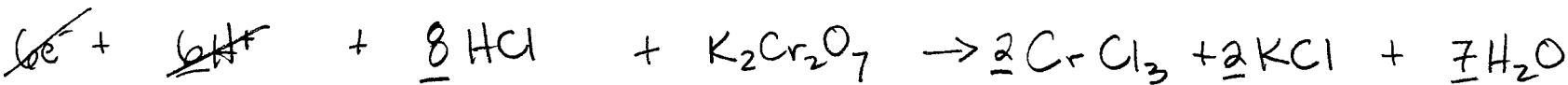
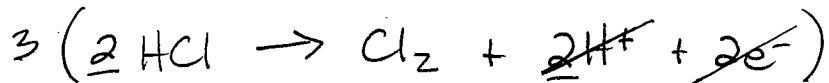


OX: S^0
 REDUCED: Os^{+7}
 OX AGENT: OsO_4^{-1}
 RED AGENT: S_8



OX: Cu^0
 REDUCED: N^{+5}
 OX AGENT: HNO_3
 RED AGENT: Cu

3) Balance the following REDOX equation that occur in an **Acidic** solution:



4) Balance the following REDOX equation that occur in a **Basic** solution:

