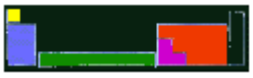
Revised August 2010



HONORS WORKSHEET 5b: ANSWERS

1.

(a) $Na \rightarrow Na^+ + e^-$
$\frac{1}{2}Cl_2 + e^- \rightarrow Cl^-$
$Na + \frac{1}{2}Cl_2 \rightarrow NaCl$ *(or all equations doubled)*

(b) $Mg \rightarrow Mg^{2+} + 2e^-$
$\frac{1}{2}O_2 + 2e^- \rightarrow O^{2-}$
$Mg + \frac{1}{2}O_2 \rightarrow MgO$ *(or all equations doubled)*

(c) $Br^+ \rightarrow Br^{5+} + 4e^-$
$2Br^+ + 4e^- \rightarrow 2Br^-$
$3Br^+ \rightarrow Br^{5+} + 2Br^-$ *(can also show as BrO^-, BrO_3^- etc.)*

(d) $Zn \rightarrow Zn^{2+} + 2e^-$
$Fe^{2+} + 2e^- \rightarrow Fe$
$Zn + Fe^{2+} \rightarrow Fe + Zn^{2+}$ *(can also show as $FeSO_4$ and $ZnSO_4$)*

2.

$2HCl_{(aq)} + M(OH)_{2(aq)} \rightarrow 2H_2O_{(l)} + MCl_{2(aq)}$
$2H^+_{(aq)} + 2Cl^-_{(aq)} + M^{2+}_{(aq)} + 2OH^-_{(aq)} \rightarrow 2H_2O_{(l)} + M^{2+}_{(aq)} + 2Cl^-_{(aq)}$
$2H^+_{(aq)} + 2OH^-_{(aq)} \rightarrow 2H_2O_{(l)}$

3.

N	NR	NR	Copper not sufficiently reactive to displace hydrogen gas from an acid
Y	$2KOH + H_2SO_4 \rightarrow K_2SO_4 + 2H_2O$ **(assumes H_2SO_4 donates BOTH H's)**	Acid Base Double Displacement	R
Y	$Zn + 2AgNO_3 \rightarrow Zn(NO_3)_2 + 2Ag$	Single Displacement Redox	R
Y	$CuSO_4 + 2NaOH \rightarrow Cu(OH)_2 + Na_2SO_4$	Double Displacement Precipitation	R
Y	$2Na + Cl_2 \rightarrow 2NaCl$	Combination Redox	R
Y	$Pb(NO_3)_2 + 2KCl \rightarrow 2KNO_3 + PbCl_2$	Double Displacement Precipitation	R