South Pasadena • AP Chemistry

Name Grover
Period __ Date __/__/__

4 • Chemical Equations and Stoichiometry

BALANCING EQUATIONS

1. $1\ ZnS + 2\ HCl \rightarrow 1\ ZnCl_2 + 1\ H_2S$
2. $2\ HCl + 1\ Cr \rightarrow 1\ CrCl_2 + 1\ H_2$
3. $8\ Al + 3\ Fe_3O_4 \rightarrow 4\ Al_2O_3 + 9\ Fe$
4. $1\ H_2 + 1\ Br_2 \rightarrow 2\ HBr$ or $\frac{1}{2}, \frac{1}{2}, 1$
5. $2\ Na_2S_2O_3 + 1\ I_2 \rightarrow 2\ NaI + 1\ Na_2S_4O_6$

6. $2\ LaCl_3 + 3\ Na_2CO_3 \rightarrow 1\ La_2(CO_3)_3 + 6\ NaCl$
7. $2\ NH_4Cl + 1\ Ba(OH)_2 \rightarrow 1\ BaCl_2 + 2\ NH_3 + 2\ H_2O$
8. $3\ Ca(OH)_2 + 2\ H_3PO_4 \rightarrow 1\ Ca_3(PO_4)_2 + 6\ H_2O$
9. $1\ La_2(CO_3)_3 + 3\ H_2SO_4 \rightarrow 1\ La_2(SO_4)_3 + 3\ H_2O + 3\ CO_2$
10. $1\ Na_2O + 1\ (NH_4)_2SO_4 \rightarrow 1\ Na_2SO_4 + 1\ H_2O + 2\ NH_3$

11. $1\ C_4H_{10} + \frac{13}{2}\ O_2 \rightarrow 4\ CO_2 + 5\ H_2O$ or 2, 13, 8, 10
12. $1\ C_7H_6O_2 + \frac{15}{2}\ O_2 \rightarrow 7\ CO_2 + 3\ H_2O$ or 2, 15, 14, 6
13. $1\ P_4O_{10} + 6\ H_2O \rightarrow 4\ H_3PO_4$
14. $2\ FeS_2 + \frac{11}{2}\ O_2 \rightarrow 1\ Fe_2O_3 + 4\ SO_2$ or 4, 11, 2, 8
15. $2\ NH_3 + \frac{5}{2}\ O_2 \rightarrow 2\ NO + 3\ H_2O$ or 4, 5, 4, 6

16. $1\ Fe + 2\ HCl \rightarrow 1\ H_2 + 1\ FeCl_2$
17. $1\ PbO_2 + 4\ HCl \rightarrow 2\ H_2O + 1\ PbCl_2 + 1\ Cl_2$
18. $1\ Fe_2O_3 + 3\ H_2SO_4 \rightarrow 1\ Fe_2(SO_4)_3 + 3\ H_2O$
19. $3\ NO_2 + 1\ H_2O \rightarrow 1\ NO + 2\ HNO_3$
20. $1\ C_2H_6S + \frac{9}{2}\ O_2 \rightarrow 2\ CO_2 + 3\ H_2O + 1\ SO_2$ or 2, 9, 4, 6, 2

Complete combustion:

21. $C_6H_{14} + \frac{19}{2}O_2 \rightarrow 6CO_2 + 7H_2O$ or 2, 19, 12, 14
22. $C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$
23. $C_3H_7OH + \frac{9}{2}O_2 \rightarrow 3CO_2 + 4H_2O$ or 2, 9, 6, 8
24. $C_6H_6 + \frac{15}{2}O_2 \rightarrow 6CO_2 + 3H_2O$ or 2, 15, 12, 6
25. $C_{17}H_{35}COOH + 26O_2 \rightarrow 18CO_2 + 18H_2O$