PS Chemistry Chapter 21 Name_____Per___

Identifying and Balancing Chemical Equations

Directions:

- Identify each of the equations below as *synthesis (S)*, *decomposition (D)*, *single replacement* (SR) or *double replacement (DR)*.
- Add coefficients to balance each of the following equations. If it is already balanced, circle the equation.

1. _____ $HgO \rightarrow Hg + O_2$

2. _____ $NaCl + AgNO_3 \rightarrow NaNO_3 + AgCl$

3. _____ $Mg + HCl \rightarrow MgCl_2 + H_2$

4. _____ $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$

5. _____ $NaOH + HCl \rightarrow NaCl + H_2O$

6. _____ $Al_2(SO_4)_3 + Ca(OH)_2 \rightarrow Al(OH)_3 + CaSO_4$

7. _____ $H_2 + O_2 \rightarrow H_2O$

8. _____ $Cl_2 + NaBr \rightarrow NaCl + Br_2$

9. _____ $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$

10. _____ $KClO_3 \rightarrow KCl + O_2$

11. _____ $H_2O + Fe \rightarrow Fe_2O_3 + H_2$

12. _____ $Ca(OH)_2 + HNO_3 \rightarrow Ca(NO_3)_2 + H_2O$

13. _____ $Na_2O + CO_2 \rightarrow Na_2CO_3$

14. _____ $H_2 + N_2 \rightarrow NH_3$

15. _____ $Al_2O_3 \rightarrow Al + O_2$

16. _____ $CuCl_2$ + H_2S → CuS + HCl

17. _____ P_4 + O_2 → P_4O_{10}

18. _____ Zn + HCl → $ZnCl_2$ + H_2

19. _____ Mg + O_2 → MgO

20. _____ $Mg(ClO_3)_2$ → $MgCl_2$ + O_2

Directions: Write the chemical formulas for each of the following equations. (Don't forget to look up oxidation numbers when writing the chemical formulas.)

21. Sodium hydroxide _____

22. Calcium fluoride _____

23. Aluminum oxide _____

24. Silver nitrate _____

25. Lithium carbonate _____

26. Magnesium nitrate _____

27. Calcium phosphate _____

28. Potassium chloride _____

Directions:

- Identify each of the equations below as *synthesis (S)*, *decomposition (D)*, *single replacement* (SR) or *double replacement (DR)*.

29. _____ Silver + chlorine → silver chloride

30. _____ Magnesium hydroxide + hydrochloric acid → magnesium chloride + water

31. _____ Hydrochloric acid + sodium hydroxide → sodium chloride + water

32. _____ Hydrogen + oxygen →water

33. _____ Sodium + water → sodium hydroxide + hydrogen

34. _____ Iron(III) oxide + carbon monoxide → iron + carbon dioxide

35. _____ Sodium hydroxide + iron(II) chloride → sodium chloride + iron(II) hydroxide