WS 4.1 Balancing Equations / Formula Mass

For 1-6, take inventory of each side and determine whether the equation is balanced (Y) or not (N):

1. $H_2 + Cl_2 \rightarrow 2\ HCl$ ____

2. $H_2 + O_2 \rightarrow 2\ H_2O$ ____

3. $3\ F_2 + N_2 \rightarrow 2\ NF_3$ ____

4. $2\ KClO_3 \rightarrow 2\ K + Cl_2 + 3\ O_2$ ____

5. $3\ Na + 3\ H_2O \rightarrow 3\ NaOH + H_2$ ____

6. $3\ K_2CO_3 + 2\ Al(OH)_3 \rightarrow 6\ KOH + Al_2(CO_3)_3$ ____

For 7-25, balance the equation by writing in the appropriate coefficients (lowest whole-numbers). Check your answers by taking inventory (like above). **HINT**: *use a pencil or erasable pen!!!!!!!*

7. ___ K + ___ S ---> ___ K_2S

8. ___ Li + ___ O_2 ---> ___ Li_2O

9. ___ N_2 + ___ O_2 ---> ___N_2O

10. ___ N_2 + ___ H_2 ---> ___ NH_3

11. ___ Fe + ___ O_2 ---> ___ Fe_2O_3

12. ___ KBr ---> ___ K + ___ Br_2

13. ___ $MgCl_2$ ---> ___ Mg + ___ Cl_2

14. ___ Al_2O_3 ---> ___ Al + ___ O_2

15. ___ $FeBr_3$ + ___ F_2 ---> ___ FeF_3 + ___ Br_2

16. ___ NH_4OH ---> ___ NH_3 + ___ H_2O

17. ___Na + ___H_2O ---> ___NaOH + ___H_2

18. ___NH_3 + ___O_2 ---> ___NO + ___H_2O

19. ___ BaO + ___ HCl ---> ___ $BaCl_2$ + ___ H_2O

20. ___ $Sn_3(BO_3)_4$ ---> ___ Sn + ___ B + ___ O_2

21. ___ H_3PO_4 + ___ $Ca(OH)_2$ ---> ___ $Ca_3(PO_4)_2$ + ___ H(OH) (hint- balance the (OH) separate from the (H)

22. ___ $C_5H_{12}O$ + ___ O_2 ---> ___ CO_2 + ___ H_2O

23. ___ Al_2O_3 + ___ C + ___ Cl_2 ---> ___ $AlCl_3$ + ___ CO

24. ___ SiF_4 + ___ H_2O ---> ___ H_4SiO_4 + ___ H_2SiF_6

25. ___ HNO_3 + ___ P_4O_{10} ---> ___ N_2O_5 + ___ H_3PO_4 (hint- balance the phosphorus first)

optional! ___ NH_3 + ___ NO_2 ---> ___ N_2O + ___ H_2O (challenge! you may get bonus points for this!)

For #26 - 33, Use a periodic table to determine the formula mass (atomic weight) of the following: use ans. bank...

26. N_2 _____ 27. H_2O _____ 28. $Ca(OH)_2$ _____ 29. $Al_2(PO_4)_3$ _____

30. C_3H_7OH _____ 31. $AgNO_3$ _____ 32. N_2O_5 _____ 33. $(NH_4)_2HPO_4$ _____

Ans (IRO+2) (#26-33): 28 18 44 60 74 108 132 170 194 339