Balancing Equations

Balance the following chemical equations.

1. ____ Fe + ____ H_2SO_4 → ____ $Fe_2(SO_4)_3$ + ____ H_2

2. ____ C_2H_6 + ____ O_2 → 6 H_2O + 4 CO_2

3. ____ KOH + ____ H_3PO_4 → ____ K_3PO_4 + ____ H_2O

4. ____ SnO_2 + ____ H_2 → ____ Sn + ____ H_2O

5. ____ NH_3 + ____ O_2 → ____ NO + ____ H_2O

6. ____ KNO_3 + ____ H_2CO_3 → ____ K_2CO_3 + ____ HNO_3

7. ____ B_2Br_6 + ____ HNO_3 → ____ $B(NO_3)_3$ + ____ HBr

8. ____ BF_3 + ____ Li_2SO_3 → ____ $B_2(SO_3)_3$ + ____ LiF

9. ____ $(NH_4)_3PO_4$ + ____ $Pb(NO_3)_4$ → ____ $Pb_3(PO_4)_4$ + ____ NH_4NO_3

10. ____ $SeCl_6$ + ____ O_2 → ____ SeO_2 + ____ Cl_2

MOLES ↔ GRAMS, MOLARITY, AND STOICHIOMETRY

a. *Use the Periodic Table included in this packet for the atomic masses.* ***Do not*** *round the atomic masses.*
b. *Show cancellation of units and report the final answer with the correct unit and correct number of sig figs.*

1. Convert the following to moles :
   a. 36.85 g C = _____
   b. 170 g O_2 = _____
   c. 24.0 g Cu = _____
   d. 165.02 g H_2O = _____
   e. 320.0 g $CaCO_3$ = _____
   f. 50.020 g $Ca_3(PO_4)_2$ = _____

2. Convert the following to grams:
   a. 1.20 mol H_2 = _____
   b. 0.052 mol Ca = _____
   c. 10.0 mol CO_2 = _____
   d. 0.00650 mol $AgNO_3$ = _____
   e. 1.025 mole $Al_2(SO_4)_3$ = _____

5. Translate the following word equations to a balanced chemical

a. iron (II) oxide + aluminum → iron + aluminum oxide

b. hydrochloric acid + sodium hydroxide → water + sodium chloride

c. calcium phosphate + sulfuric acid → calcium sulfate + phosphoric acid

d. calcium carbonate → calcium + carbon + oxygen gas

e. sodium chloride + silver nitrate → sodium nitrate + silver chloride

f. potassium hydroxide + sulfuric acid → potassium sulfate + water

6. Identify each of the equations you balanced in #5 as **reduction-oxidation**, **precipitation** or **acid-base (neutralization)** reactions.

a.
b.
c.
d.
e.
f.

Write the name for the following compounds.

1. N_2O_5
2. KCl
3. $Ca(NO_3)_2$
4. Na_2SO_4
5. $Fe_3(PO_4)_2$
6. $CuSO_4 \cdot 5H_2O$
7. $Ba_3(PO_4)_2$
8. H_2CO_3
9. $(NH_4)_2CO_3$
10. Hg_2O
11. N_8F_4
12. Sr_3As_2
13. NH_4NO_3
14. SiI_4
15. V_2O_5
16. $CoBr_3$
17. $Ni(NO_3)_2$
18. $NaPO_4$
19. SiH_4
20. $TiCl_4$
21. $Mn(OH)_2 \cdot 6H_2O$
22. $KClO_3$
23. CaF_2
24. $FeBr_3$
25. VCO_3
26. NF_4
27. Li_3N
28. Si_3N_4
29. CoS
30. NH_4NO_3