Relationships and Mole Ratios Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Part A: Interpret the balanced equations in terms of particles, moles, and mass. Show that the law of conservation of mass is observed.

1. 6K + B2O2 → 3K2O + 2B
2. Particles =
3. Moles =
4. Mass =
5. Law of conservation of mass =
6. N2 + 3H2 → 2NH3
7. Particles =
8. Moles =
9. Mass =
10. Law of conservation of mass =
11. C3H8 + 5O2 → 3CO2 + 4H2O
12. Particles =
13. Moles =
14. Mass =
15. Law of conservation of mass =
16. Balance the equation first: \_\_\_\_\_Mg + \_\_\_\_\_O2 → \_\_\_\_\_MgO
17. Particles =
18. Moles =
19. Mass =
20. Law of conservation of mass =
21. Balance the equation first: \_\_\_\_\_H2SO4 + \_\_\_\_\_NaOH → \_\_\_\_\_Na2SO4 + \_\_\_\_\_H2O
22. Particles =
23. Moles =
24. Mass =
25. Law of conservation of mass =

Part B: Determine all possible mole ratios for the balanced equations

1. 4Al + 3O2 → 2Al2O3 # of mole ratios = \_\_\_\_\_\_\_\_\_\_\_\_
2. 3Fe + 4H2O → Fe3O4 + 4H2 # of mole ratios = \_\_\_\_\_\_\_\_\_\_\_
3. 2HgO → 2Hg + O2 # of mole ratios = \_\_\_\_\_\_\_\_\_\_\_\_
4. First balance the equation: \_\_\_\_\_ZnO + \_\_\_\_\_HCl → \_\_\_\_\_ZnCl2 + \_\_\_\_\_H2O
5. Write out and balance the equation: butane (C4H10) + oxygen → carbon dioxide + water