

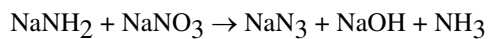
PLACE THE LETTER REPRESENTING THE BEST ANSWER TO EACH QUESTION ON THE APPROPRIATE LINE ON THE ANSWER SHEET. FOR TRUE/FALSE QUESTIONS, WRITE THE WORD TRUE OR FALSE ON THE ANSWER SHEET. FOR OTHER QUESTIONS, CLEARLY WRITE IN THE ANSWER, INCLUDING UNITS WHEN NECESSARY. *CLEARLY SHOW ALL WORK ON ADDITIONAL SCRAP PAPER. HAND IN ASSIGNMENT, ANSWER SHEET, AND SCRAP WORK.*

When the following equations are balanced using the smallest possible integers, what is the number in front of the underlined substance in each case?

1. $\text{Mg}(s) + \text{HCl}(aq) \rightarrow \text{MgCl}_2(aq) + \underline{\text{H}_2}(g)$
a. 5 b. 2 c. 3 d. 4 e. 1
2. $\underline{\text{Sb}}(s) + \text{O}_2(g) \rightarrow \text{Sb}_2\text{O}_5(s)$
a. 12 b. 2 c. 4 d. 6 e. 1
3. $\text{N}_2(g) + \underline{\text{O}_2}(g) \rightarrow \text{N}_2\text{O}_3$
a. 6 b. 2 c. 3 d. 4 e. 1
4. $\text{FeCl}_2(aq) + \text{Ag}_3\text{PO}_4(aq) \rightarrow \text{Fe}_3(\text{PO}_4)_2(aq) + \underline{\text{AgCl}}(s)$
a. 4 b. 6 c. 1 d. 2 e. 12
5. $\text{C}_2\text{H}_6(g) + \underline{\text{O}_2}(g) \rightarrow \text{CO}_2(g) + \text{H}_2\text{O}(g)$
a. 8 b. 4 c. 7 d. 10 e. 14
6. $\text{CH}_3\text{OH}(l) + \text{O}_2(g) \rightarrow \text{CO}_2(g) + \underline{\text{H}_2\text{O}}(g)$
a. 4 b. 2 c. 12 d. 1 e. 6
7. $\text{HCl}(aq) + \text{Mg}(\text{OH})_2(aq) \rightarrow \underline{\text{MgCl}_2}(aq) + \text{H}_2\text{O}(l)$
a. 1 b. 2 c. 5 d. 3 e. 4
8. $\text{NH}_3(g) + \underline{\text{O}_2}(g) \rightarrow \text{NO}_2(g) + \text{H}_2\text{O}(g)$
a. 7 b. 3 c. 12 d. 6 e. 14
9. $\text{Al}_2\text{O}_3(s) + \text{H}_2\text{SO}_4(aq) \rightarrow \text{Al}_2(\text{SO}_4)_3(aq) + \underline{\text{H}_2\text{O}}(l)$
a. 2 b. 1 c. 9 d. 3 e. 6
10. $\text{H}_3\text{PO}_4(aq) + \text{Ca}(\text{OH})_2(aq) \rightarrow \text{Ca}_3(\text{PO}_4)_2(aq) + \underline{\text{H}_2\text{O}}(l)$
a. 3 b. 6 c. 5 d. 4 e. 2
11. $\text{Br}_2(l) + \text{KI}(aq) \rightarrow \text{I}_2(aq) + \underline{\text{KBr}}(aq)$
a. 1 b. 2 c. 6 d. 3 e. 4
12. $\text{SO}_2(g) + \text{O}_2(g) \rightarrow \underline{\text{SO}_3}(g)$
a. 4 b. 1 c. 3 d. 5 e. 2

13. When the equation $\text{Si}(s) + \text{HF}(aq) \rightarrow \text{SiF}_4(g) + \text{H}_2(g)$ is balanced, what is the coefficient for HF?
- a. 1 b. 0 c. 3 d. 4 e. 2
14. To balance the equation, $\text{HgO}(s) \rightarrow \text{Hg}(l) + \text{O}_2(g)$ what coefficient should be placed in front of O_2 ?
- a. 3/2 b. 6 c. 2 d. 1/2 e. 1 (understood)
15. The sum of the coefficients when the following equation is balanced is $\text{BaSO}_4 + \text{K}_3\text{PO}_4 \rightarrow \text{Ba}_3(\text{PO}_4)_2 + \text{K}_2\text{SO}_4$
- a. 7 b. 11 c. 8 d. 9 e. 4
16. How many of the following statements are true concerning chemical equations which are properly balanced?
- I. Coefficients can be fractions.
 II. Subscripts can be fractions.
 III. Coefficients represent the relative masses of the reactants and/or products.
 IV. Changing the subscripts to balance an equation can only be done once.
 V. Atoms are conserved when balancing chemical equations.
- a. 4 b. 5 c. 1 d. 2 e. 3
17. All the following are clues that a chemical reaction has taken place *except*
- a. a solid forms b. the reactant is smaller
 c. bubbles form d. a flame occurs
 e. a color change
18. Which of the following is evidence of a chemical reaction?
- a. a gas is detected b. precipitate is formed
 c. a color change is observed d. an energy change is noted
 e. all of the above
19. Which of the following is not evidence for a chemical reaction producing a gas?
- a. an odor is detected
 b. a color change is observed
 c. a flaming splint is extinguished when held over the chemical mixture
 d. a glowing splint bursts into flames when held over the chemical mixture
 e. bubbles are observed
20. Which of the statements below best describes the following reaction.?
- $$2\text{AgClO}_3(s) \xrightarrow{\Delta} 2\text{AgCl}(s) + 3\text{O}_2(g)$$
- a. silver chlorate gives silver chloride and oxygen
 b. silver chlorate is heated to give silver chloride and oxygen
 c. silver chlorate gives solid silver chloride and oxygen gas
 d. silver chlorate is heated to give solid silver chloride and oxygen gas
 e. solid silver chlorate is heated to give solid silver chloride and oxygen gas
21. Which of the following is not a general direction for balancing an equation?
- a. write correct formulas for reactants and products
 b. begin balancing with the most complex formula
 c. balance polyatomic ions as a single unit
 d. balance ionic compounds as a single unit
 e. check each reactant and product to verify the coefficients

22. What is the sum of the coefficients of the following equation when it is balanced using smallest whole number integers?



- a. 7 b. 9 c. 5 d. 6 e. 8

23. When the equation $\text{Cr}_2\text{S}_3 + \text{HCl} \rightarrow \text{CrCl}_3 + \text{H}_2\text{S}$ is balanced, one of the terms in the balanced equation is

- a. $3\text{H}_2\text{S}$ b. $2\text{Cr}_2\text{S}_3$ c. CrCl_3 d. 3HCl

NAME _____

DATE _____

ANSWER SHEET
CHEM 101 – CHAP 6 ASSIGN

- | | | | |
|-----------|-----------|-----------|-----------|
| 1. _____ | 13. _____ | 25. _____ | 37. _____ |
| 2. _____ | 14. _____ | 26. _____ | 38. _____ |
| 3. _____ | 15. _____ | 27. _____ | 39. _____ |
| 4. _____ | 16. _____ | 28. _____ | 40. _____ |
| 5. _____ | 17. _____ | 29. _____ | 41. _____ |
| 6. _____ | 18. _____ | 30. _____ | 42. _____ |
| 7. _____ | 19. _____ | 31. _____ | 43. _____ |
| 8. _____ | 20. _____ | 32. _____ | 44. _____ |
| 9. _____ | 21. _____ | 33. _____ | 45. _____ |
| 10. _____ | 22. _____ | 34. _____ | 46. _____ |
| 11. _____ | 23. _____ | 35. _____ | 47. _____ |
| 12. _____ | 24. _____ | 36. _____ | 48. _____ |

SP 2012