

## 7.1 Evidence For a Chemical Reaction

### Chemistry Problem Set

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_ Per. \_\_\_\_\_

**Directions:** Answer all open-ended questions in complete sentences, using evidence to support your answers. For math questions, show all of your work and include appropriate units and significant figures in your final answer to receive **FULL** credit.

1. Review how we defined chemical change in Chapter 3. Explain how the visual clues mentioned in this chapter are indicators of chemical change as defined in Chapter 3.
2. If a piece of blackboard chalk is heated strongly, the mass of the chalk decreases substantially, and the chalk is converted into a fine powder. What evidence is there for a chemical reaction having taken place when the chalk is heated?
3. If you have had a clogged sink drain at your home, your parents may have tried using a commercial drain cleaner to dissolve the clog. What evidence is there that such drain cleaners work by chemical reaction?
4. If a bottle of aspirin is left open to the air, eventually one of the products is acetic acid (vinegar is a mixture of acetic acid and water). Is there evidence that this change represents a chemical reaction?

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5. Distinguish between a chemical reaction and a chemical equation.
  
  
  
  
  
  
  
  
  
  
6. Explain the difference between reactants and products. Write a generic equation.
  
  
  
  
  
  
  
  
  
  
7. What do the arrows and coefficients in equations communicate?
  
  
  
  
  
  
  
  
  
  
8. Does a conversion of a substance into a new substance always indicate that a chemical reaction has occurred? Explain.
  
  
  
  
  
  
  
  
  
  
9. List four observations that indicate that a chemical reaction may be taking place.

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10. List the three requirements for a correctly written chemical equation.

11. What four guidelines are useful in balancing an equation?

12. Give the names and formulas of the 7 diatomics.

13. Create a list of the symbols used in a chemical reaction.

14. Explain why it is important that a chemical equation be balanced.

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15. Compare and contrast a skeleton equation and a chemical equation.

16. Explain why it is important to reduce coefficients in a balanced equation to the lowest-possible whole-number ratio.

17. When balancing a chemical equation, can you adjust the subscript in a formula? Explain.