WS 16.1 The Rate of a Reaction Name: _____ Date: _____ Per: ____

1) What is meant by the rate of a chemical reaction? What are the units of the rate of a reaction?

2) Distinguish average rate and instantaneous rate.

3) Briefly summarize the effects of each of the four factors that affect rates of reactions.

4) What is a rate-law expression? Describe how it is determined for a particular reaction.

5) Why do large crystals of sugar burn more slowly than finely ground sugar?

6) Pg. 651 #7

7) Write the reaction rate expressions for the following reactions in terms of the disappearance of the reactants and the appearance of products:

a) H_2 (g) + I_2 (g) → 2HI

b) 4 NH_3 (g) + 5 O_2 (g) → 4 NO (g) + 6 H_2O (g)

c) 2H2 (g) + O2 (g) → 2NO (g) + 6H2O (g)

8) Consider the reaction 2NO (g) + O_2 (g) → 2NO_2 (g). Suppose that at a particular moment during the reaction nitric oxide (NO) is reacting at a rate of 0.066 M/s. (a) at what rate is NO_2 being formed? (b) at what rate is molecular nitrogen reacting?

9) Consider the reaction N_2 (g) + 3H_2 → 2NH_3 (g). Suppose that at a particular moment during the reaction molecular hydrogen is reacting at a rate of 0.074 M/s. (a) at what rate is ammonia being formed? (b) at what rate is molecular oxygen reacting?