Worksheet 5: Reaction Rates

1. If time is measured in seconds and concentration is measured in molarity, what are the units for the rate of consumption?

2. What do the symbols Δ, ( ), and [ ] mean in terms of chemical reactions?

3. How do rates of consumption and production of the same magnitude differ?

4. Given equation (1) below, provide an analagous expression for the rate of production of a product.

$$\text{rate of consumption of reactant} = -\frac{\text{change in molarity of reactant}}{\text{change in time}} = -\frac{\Delta(\text{reactant})}{\Delta\text{time}} \qquad (1)$$

5. For the reaction below, write the reaction rate in terms of each product and reactant.
$3ClO^-(aq) \rightarrow 2Cl^-(aq) + ClO_3^-(aq)$

6. Do you notice a pattern for determining the coefficients for each reaction component?

7. What change do we make to the way we write the reaction rate in equation (1) when we talk about instantaneous rates?

8. What is special about an initial reaction rate?