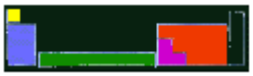
**Revised August 2010**



# HONORS WORKSHEET 13a: ANSWERS

1.

(a) Rate = k $[H_2]^2[Br_2]^0$

1.92 x 10-3 $M^{-1}$ $s^{-1}$

(b) 2nd order, (2 + 0 = 2)

2.

(a) Rate = k $[O_2]$ $[NO]^2$

(b) 500 $M^{-2}$ $s^{-1}$

3.

(a) $(mol\ L^{-1})^{-2}$ $s^{-1}$

(b) $M^{-1}$ $min^{-1}$

(c) g $s^{-1}$

*There are, of course, other ways to express these units correctly*

4. Start with known concentrations of the two reactants and carry out the reaction. Measure the rate of reaction by collecting the gas, and record the volume produced per unit time. This is the rate

Repeat the experiment, this time changing the concentration of one of the reactants by a specific, known amount, but leaving the other concentration unchanged. Once again measure the rate of reaction by collecting the gas, and record the volume produced per unit time. This is the rate

Repeat the experiment once more, this time changing the concentration of the reactant that remained constant in the first repetition by a specific, known amount, but reverting back to the original concentration the reactant that was changed in the first repetition. Once again measure the rate of reaction by collecting the gas, and record the volume produced per unit time. This is the rate

A comparison of the rate changes with associated concentration changes leads to determination of the orders with respect to each reactant