

Skill Practice 43

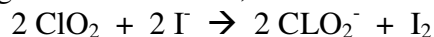
Rate Law Practice

Name: _____

Date: _____

Hour: _____

1. Give the following reaction and data, answer the following questions.



<u>Experiment</u>	<u>[ClO₂]</u>	<u>[I⁻]</u>	<u>rate of disappearance of I⁻</u>
1	0.30	0.40	$3.350 \times 10^{-4} \text{ M/s}$
2	0.90	0.40	$9.045 \times 10^{-3} \text{ M/s}$
3	0.30	0.80	$5.600 \times 10^{-3} \text{ M/s}$

- What is the order with respect to HI in this reaction?
- What is the order with respect to CH₃I in this reaction?
- What is the overall order in this reaction?
- Write the rate law for this reaction.
- Calculate the rate constant and include units.
- How does the rate of disappearance of HI compare to the rate of appearance of I₂?

1. Consider the following reaction and the following experimental data.



	[H₂O₂]	[I⁻]	[H⁺]	Rate
Expt. 1	0.010	0.010	0.00050	$1.15 \times 10^{-6} \text{ M/s}$
Expt. 2	0.020	0.010	0.00050	$2.30 \times 10^{-6} \text{ M/s}$
Expt. 3	0.010	0.020	0.00050	$2.30 \times 10^{-6} \text{ M/s}$
Expt. 4	0.010	0.010	0.00100	$1.15 \times 10^{-6} \text{ M/s}$

- What is the order for each reactant?
- Write the rate law.
- Determine the rate constant including units.