- Four experiments were conducted to discover how the initial rate of consumption of BrO_3^- ions in the reaction below varied as the concentrations of the reactants were changed.

$$BrO_3^- + 5Br^- + 6H^+ \rightarrow 3Br_2 + 3H_2O$$

Experiment	Initial concentration (mol L^{-1})			Initial rate (mol L^{-1} s^{-1})
	BrO_3^-	Br^-	H^+	
1	0.10	0.10	0.10	1.2×10^{-3}
2	0.20	0.10	0.10	2.4×10^{-3}
3	0.10	0.30	0.10	3.5×10^{-3}
4	0.20	0.10	0.15	5.4×10^{-3}

Use the experimental data in the table above to determine the order of the reaction with respect to *each* reactant.

What is the rate of formation of Br_2 when $[BrO_3^-] = [Br^-] = [H^+] = 0.10$ M?

Write the rate law for the reaction and determine the value of the rate constant, k.