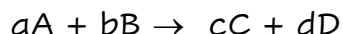


## Reaction Order and Rate Law

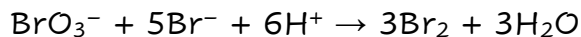
1. Consider the general reaction,



The rate law for this reaction is:  $\text{rate} = k[A]^m[B]^n$

If the order with respect to [A] is one and the order with respect to [B] is 2, write the rate law. What is the overall reaction order? What are the units for k?

2. Consider the following reaction.



The rate law is:  $\text{rate} = k[\text{BrO}_3^-][\text{Br}^-][\text{H}^+]^2$

- what is the order with respect to each reactant?
- what is the overall order of reaction?
- by what factor will the rate change if the concentration of  $[\text{BrO}_3^-]$  is quadrupled?
- by what factor will the rate change if the concentration of  $\text{Br}^-$  is decreased by one-half?
- by what factor will the rate change if  $\text{Br}^-$  and  $\text{BrO}_3^-$  are both doubled?