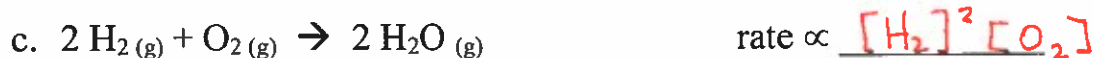
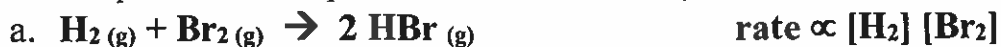


Chemical Kinetics II

Name: _____ due next class

1) Write out a plausible rate expression for each elementary reaction below: (1 pt each)



2) What would happen to the rate of reaction in **1b** above if: (1 pt each)

a. The $[\text{Cl}_2]$ were suddenly tripled?

x3

b. The $[\text{Cl}_2]$ were halved?

1/2

c. The $[\text{Cl}_2]$ were doubled and the $[\text{Br}_2]$ were doubled?

x4

d. The $[\text{Cl}_2]$ were quadrupled (x 4) and the $[\text{Br}_2]$ were doubled?

x8

3) What would happen to the rate of reaction in **1d** above if: (1 pt each)

a. The $[\text{N}_2]$ were suddenly doubled?

x2

b. The $[\text{O}_2]$ were doubled?

x4

c. The $[\text{N}_2]$ were doubled and the $[\text{O}_2]$ were tripled?

$$2 \times 3^2 = 2 \times 9 = 18$$

4) Explain, using the collision theory, why the rate of rxn 1a would double if the $[\text{H}_2]$ were to double. (2)

If $[\text{H}_2]$ were to double it would be twice as likely for a Br_2 molecule to collide with a H_2 molecule.
 \therefore the rate doubles

5) What is a catalyst and how does it work? (3)

- Speeds up a reaction
- Lowers the E_a (multiple steps)
- Does not get used up (not consumed)