|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trial Data** | | | | **Rate = [A]Xa[B]Xb** | | |
| **Trials** | **[A]** | **[B]** | **r** | * Hold one reactant constant * Vary one reactant * Figure out by how much the varied reactant changes concentration (always divide the bigger one by smaller to make the numbers easier) * Figure out the difference in rate * Relate the two together * Find the exponent – that is your order | | |
| **Trial #1** | 0.10 | 0.10 | 2.0 |
| **Trial #2** | 0.10 | 0.20 | 4.0 |
| **Trial #3** | 0.30 | 0.10 | 2.0 |
| **Reactant being held constant** | **Choose Trial #’s** | **Reactant that is Δing** | **Factor by which [ ] is changing (y)**  **y = [ ] / [ ]** | **Δrate = rf/ri** | **Δrate = yx**  **(solve for x)** | **x = rxn order  with respect to  the reactant being changed** |
| A | #1  #2 | B | [0.2]/[0.1]  = 2 | 4.0/2.0  = 2 | 2 = 2xb  Xb = 1 | 1st order with respect to B |
| B | #3  #1 | A | [0.3]/[0.1]  = 3 | 2.0/2.0  = 1 | 1 =3xa  Xa = 0 | 0 order with respect to A |