

Recap: finding a rate equation

Derivation the rate equation:

- 1. Find the RDS and (if applicable) the MARI
- 2. Write $r = \text{RDS}$
- 3. Find an eq. or SSA relation to calculate concentrations in the RDS
 - 3.1 If the RDS consumes the MARI, [MARI] is obtained from an eq. relation.
 - 3.2 If both steps are irreversible, use the SSA.

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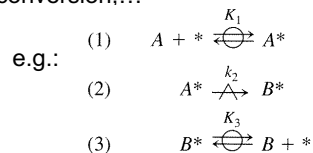
Recap: finding a rate equation

How do I find a MARI?

- Don't assume you have to! It's an approximation and lots of RX don't have MARIs
- Look for clues:

- In the rate equation: e.g.:
$$r = \frac{cst1 P_{PO} - cst2 P_{PHOH}/P_{H_2}}{1 + cst3 P_{H_2}^{0.5}}$$

- In the conditions*: high P, high/low conversion,...



At high or low conversion, or at high P_A or P_B , we can force A^* or B^* to be the MARI

- In your chemical intuition (the most risky)

*You choose them so you can force a MARI...

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