

## 2.5.3 General rules

### If a MARI can be assumed:

If the RDS produces or destroys the MARI. The RX can be reduced to 2 steps: and equilibrium and the RDS. All other steps will not have kinetic significance.

If all steps are irreversible and there is a MARI. The RX can be reduced to 2 steps: adsorption and, RX or desorption of the MARI

All equilibrated steps following the RDS producing the MARI or all equilibrium steps that precede the RDS consuming the MARI can be represented as a single equilibrium relation.

### Derivation of the rate equation:

1. Find the RDS and the MARI (if you decide to assume there is one)
2. Write  $r=RDS$
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.