Conservation of Mass

Conservation of Mass (COM)

rate of mass increase
within the CV

$$\frac{dM_{CV}}{dt} = \sum_{into\ CV} \dot{m} - \sum_{out\ of\ CV} \dot{m}$$

rate at which mass
enters the CV

rate at which mass
leaves the CV

Reminders
1. Identify your control volume.
2. Draw your EFD.
3. State major assumptions where you use them.

Notes
1. (mass flow rate) = (density)*(volumetric flow rate):
$$\dot{m} = \rho V A = \frac{VA}{v}$$
2. When using the First and Second Laws applied to a CV, usually COM will also be used.