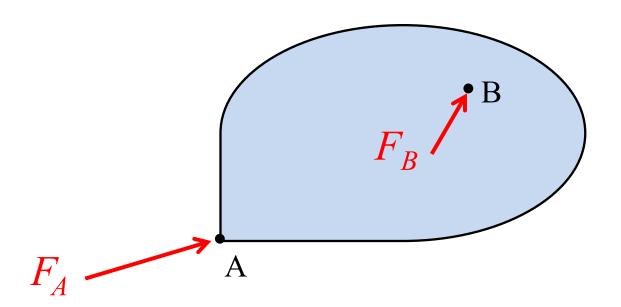
Two-Force Members Steven Vukazich San Jose State University

Notes Regarding Two-Force Members

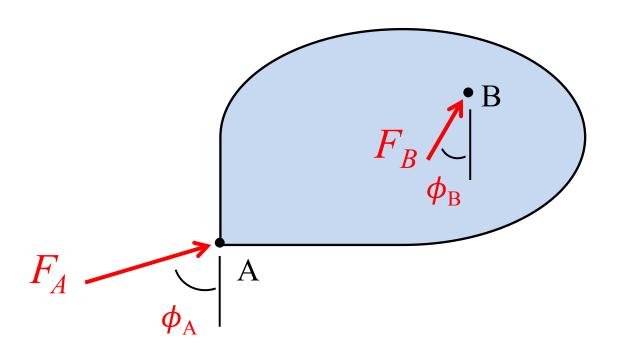
- Identifying two-force members in statics analysis is not strictly necessary;
- Identifying two-force members is usually advantageous as it often simplifies the analysis and reduces the possibility of making errors;
- Look for members that satisfy the following;
 - 1. Members whose weight is negligible,
 - 2. Members connected by exactly two pin connections,
 - 3. Members with no applied loading between connections.

Exactly Two Forces Applied to the Member

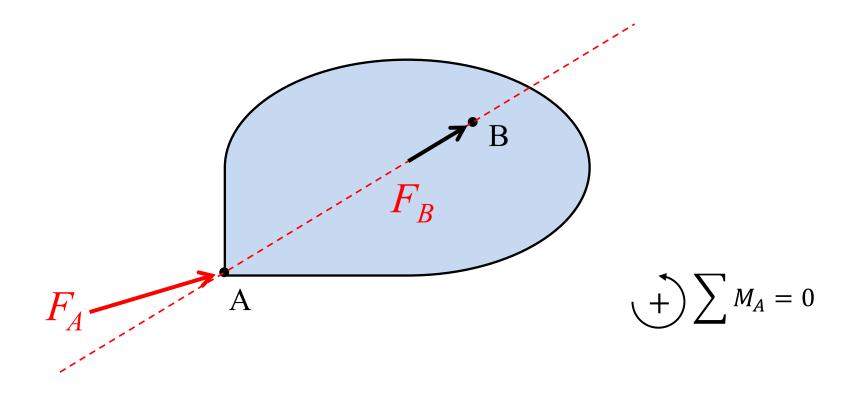


4 Unknowns

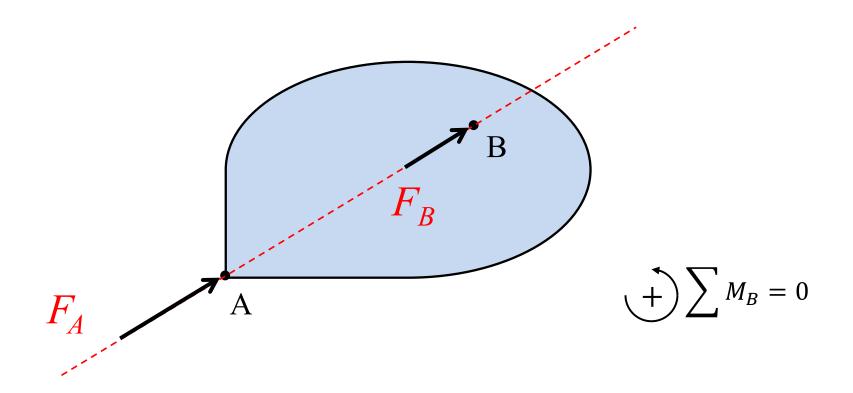
3 Independent Equations of Equilibrium



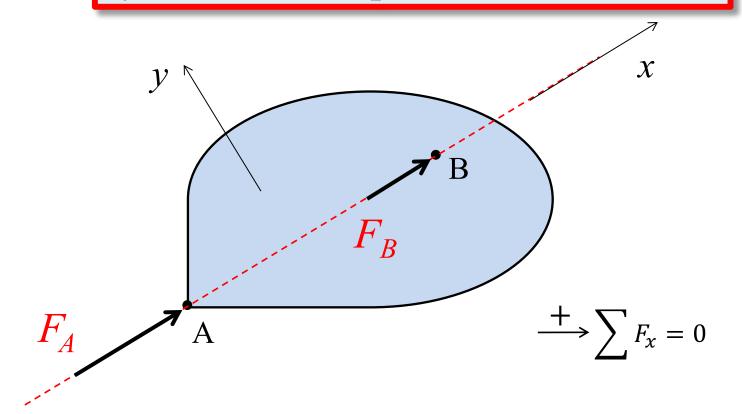
Satisfy Moment Equilibrium about Point A



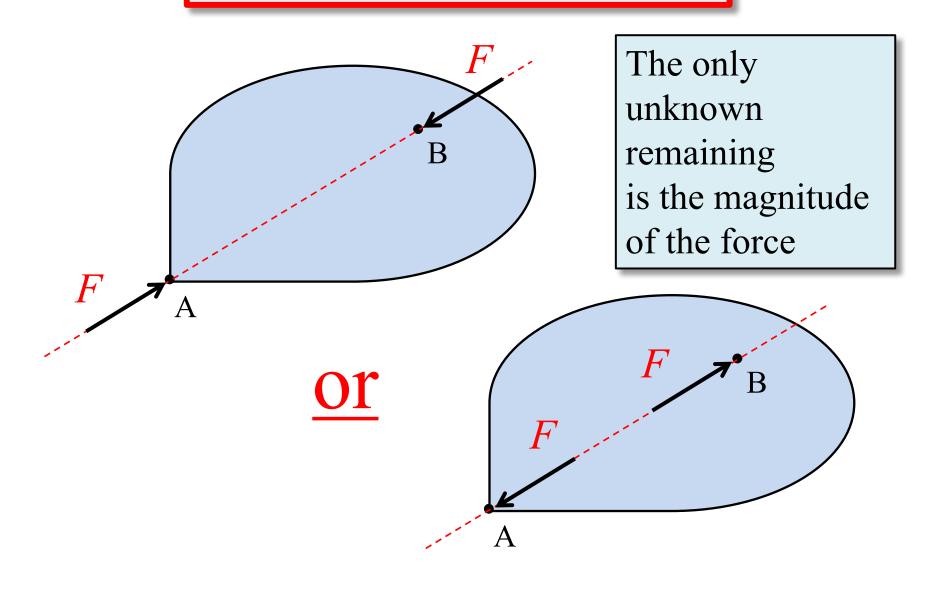
Satisfy Moment Equilibrium about Point B



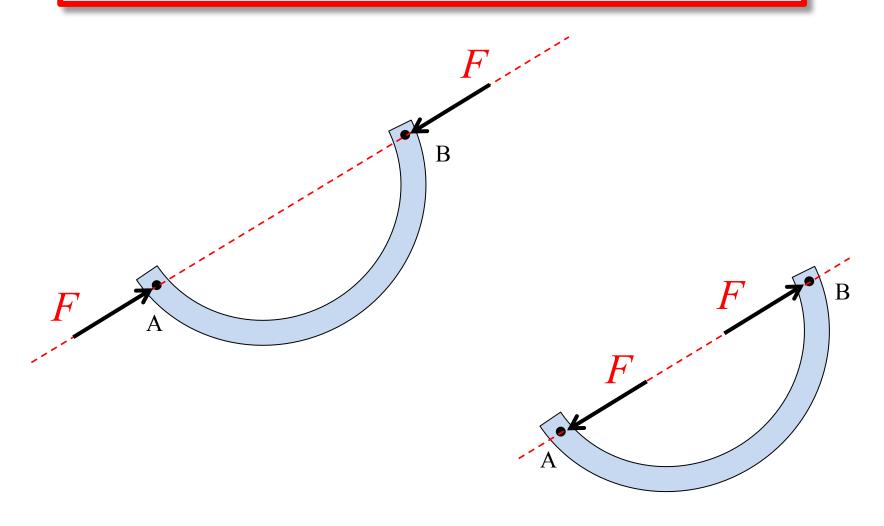
We can define our coordinate system to line up with AB



Two possibilities for Equilibrium for Two-Force Members



Note that the shape of the two-force member does not change the result





Braces in frames to resist seismic loads are often idealized as two-force members

Brace in compression

FA

F Brace in tension