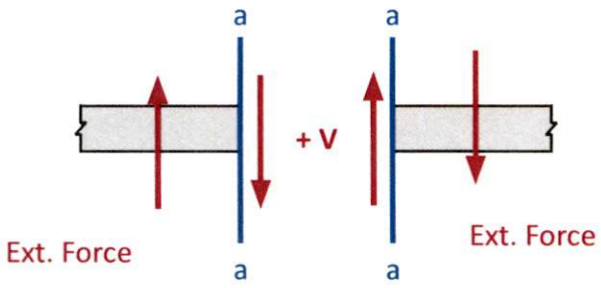
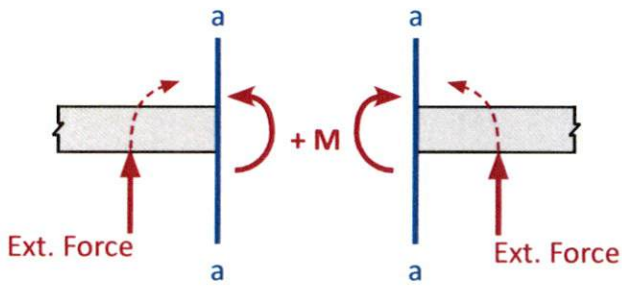


Direction of Positive Internal Shear Force V



Direction of Positive Internal Bending Moment M

Rule 1 **(For Finding Shear Forces)** The internal shear force at any section of a beam is equal to the algebraic sum of the external forces on either segment separated by the section. If the summation is from the left end of the beam to the section, treat the upward forces as positive. If the summation is from the right end of the beam to the section, treat the downward forces as positive.

$V = \Sigma$ Ext. Forces
- From Left: Upward force as positive
- From Right: Downward force as positive

Rule 2 **(For finding Bending Moment)** The internal bending moment at any section of a beam is equal to the algebraic sum of the moments about the section due to the external forces on either segment separated by the section, In either case, treat the moment produced by upward forces as positive.

$M = \Sigma$ Moments of Ext. Forces
- From either side: Moment due to upward force as positive