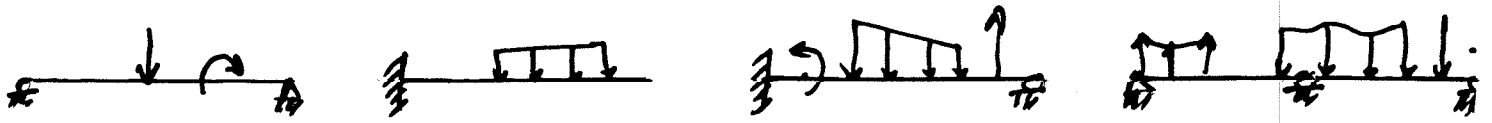


# Shear Force Diagrams & Equations

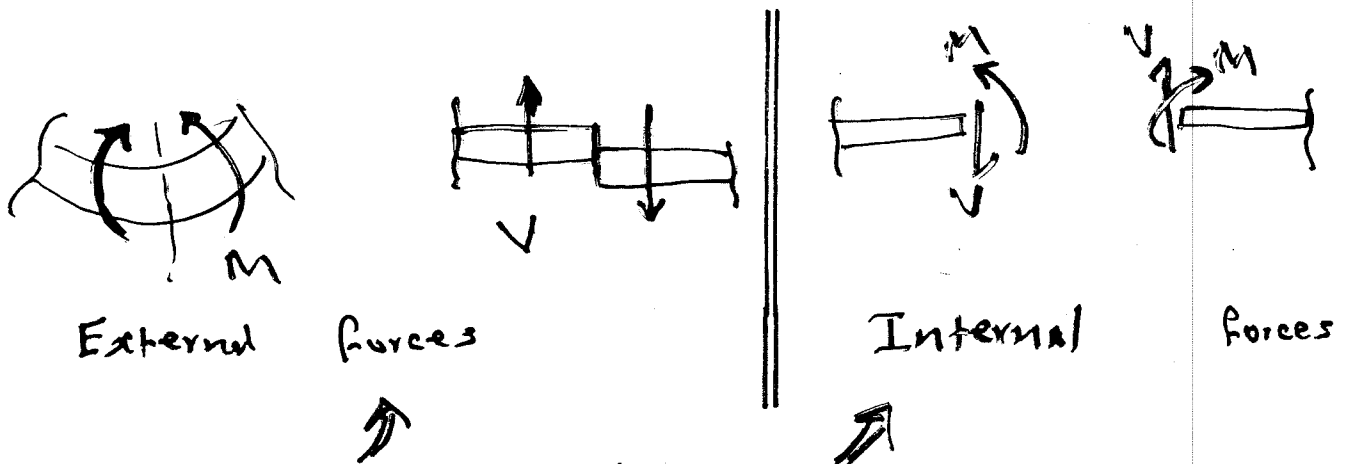
## Bending Moment Diagrams & Equations



### Beams

Beam = a structural member designed to support loads applied perpendicular to the axis of the beam.

It is usually long in one direction (axis of the beam) compared with the other two directions.



All shown external and internal forces are positive

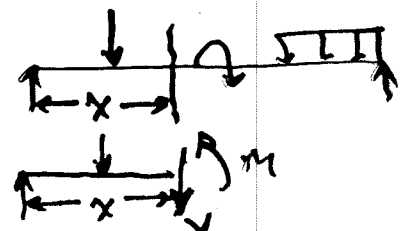
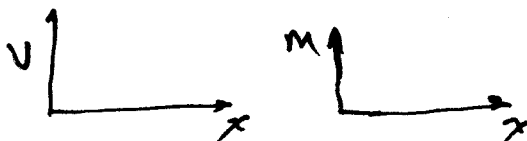
Before, we discussed how to determine the internal forces at specific points. Now we need to determine the internal forces at any point  $x$ ; that is we need to write  $V$  and  $M$  as functions of  $x$ .  $\Rightarrow$

$$V = f(x)$$

$$M = f(x)$$

Then we plot these functions.

See the examples next



\* Note that there are infinite number of points  $\Rightarrow$  use  $x$