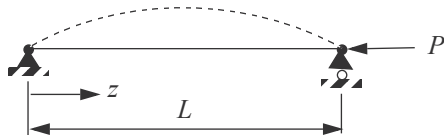


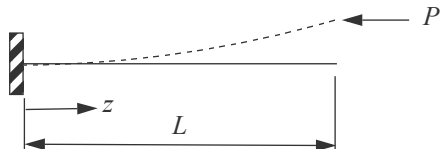
### A. Pinned-pinned

$$\begin{aligned} v_1(0) &= 0 & v_1(L) &= 0 \\ M_{x1}(0) &= 0 & M_{x1}(L) &= 0 \end{aligned}$$



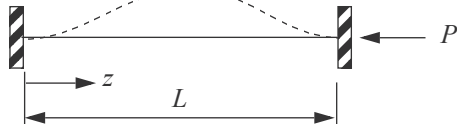
### B. Clamped-free

$$\begin{aligned} v_1(0) &= 0 & M_{x1}(L) &= 0 \\ \phi_{x1}(0) &= 0 & S_{y1}(L) &= 0 \end{aligned}$$



### C. Clamped-clamped

$$\begin{aligned} v_1(0) &= 0 & v_1(L) &= 0 \\ \phi_{x1}(0) &= 0 & \phi_{x1}(L) &= 0 \end{aligned}$$



### D. Clamped-pinned

$$\begin{aligned} v_1(0) &= 0 & v_1(L) &= 0 \\ \phi_{x1}(0) &= 0 & M_{x1}(L) &= 0 \end{aligned}$$

