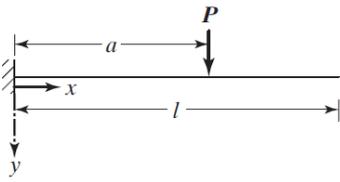
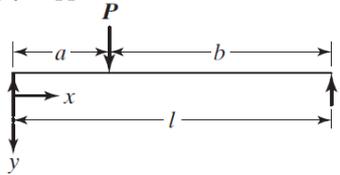


Cantilever Beam



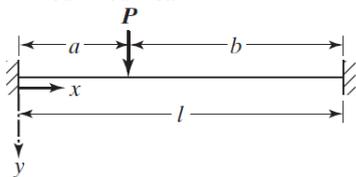
$$y(x) = \begin{cases} \frac{Px^2}{6EI}(3a - x); & 0 \leq x \leq a \\ \frac{Pa^2}{6EI}(3x - a); & a \leq x \leq l \end{cases}$$

Simply Supported Beam



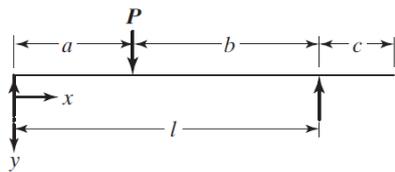
$$y(x) = \begin{cases} \frac{Pbx}{6EI}(l^2 - x^2 - b^2); & 0 \leq x \leq a \\ \frac{Pa(l-x)}{6EI}(2lx - x^2 - a^2); & a \leq x \leq l \end{cases}$$

Fixed-fixed Beam



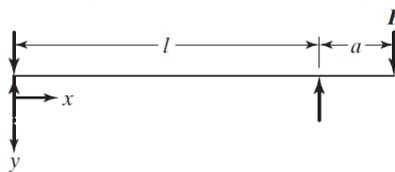
$$y(x) = \begin{cases} \frac{Pb^2x^2}{6EI^3}[3al - x(3a + b)]; & 0 \leq x \leq a \\ \frac{Pa^2(l-x)^2}{6EI^3}[3bl - (l-x)(3b + a)]; & a \leq x \leq l \end{cases}$$

Simply Supported Beam with Overhang



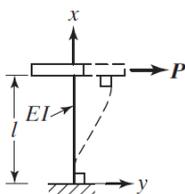
$$y(x) = \begin{cases} \text{Same as in case of simply supported beam} \\ \text{for } 0 \leq x \leq a \text{ and } a \leq x \leq l \\ \frac{Pa}{6EI}(l^2 - a^2)(x - l); & l \leq x \leq l + c \end{cases}$$

Simply Supported Beam with Overhanging Load



$$y(x) = \begin{cases} \frac{Pax}{6EI}(x^2 - l^2); & 0 \leq x \leq l \\ \frac{P(x-l)}{6EI}[a(3x-l) - (x-l)^2]; & l \leq x \leq l + a \end{cases}$$

Fixed-fixed Beam with End Displacement



$$y(x) = \frac{P}{12EI}(3lx^2 - 2x^3)$$