



$$R_A = R_B = 594.32 \text{ kN}$$

$$M = R_A x - \frac{\omega x^2}{2}$$

$$EI \frac{dy}{dx} = \frac{R_A x^2}{2} - \frac{\omega x^3}{6} + A; \quad EI x = \frac{R_A x^3}{6} - \frac{\omega x^4}{24} + Ax + B$$

$$\text{When } x = \frac{L}{2} \quad \frac{dy}{dx} = 0$$

$$\therefore A = \frac{\omega x^3}{6} - \frac{R_A x^2}{2} = -1.215 \times 10^{-7}$$

$$B = 0$$

$$\therefore x = \frac{R_A x^3}{6} - \frac{\omega x^4}{24} + Ax$$

$$\therefore x = -8.233 \times 10^{-3} \text{ m} \quad \text{OR} \quad 8.233 \text{ mm}$$