Deflection of Beams

Worked Example 3

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MMME2053 – Mechanics of Solids

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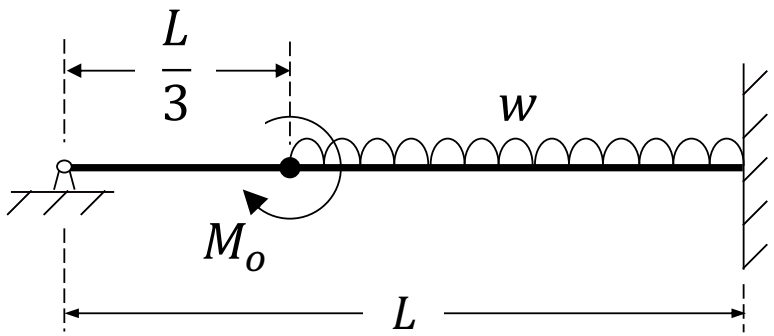
Worked Example 3

Statically Indeterminate Problem

The beam shown below, of length, $L = 0.75\ \mathrm{m}$, is the simply supported at the left-hand side and built-in at the right-hand side. It is subjected to a point bending moment, $M_o = 2.5\ \mathrm{kNm}$, at $\frac{L}{3}$ from the left-hand side and a uniformly distributed load, $w = 3.25\ \mathrm{kN/m}$, which begins at the same position and continues to the right-hand side of the beam. The flexural rigidity of the beam, $EI = 22\ \mathrm{kNm^2}$.



Problem

Use Macaulay's method to determine the slope at the simple support position and the deflection at the middle of the uniformly distributed load.

See video recording for solution