Homework #6

Problem 4.3-2  Determine the shear force \( V \) and bending moment \( M \) at the midpoint \( C \) of the simple beam \( AB \) shown in the figure.

Problem 4.3-12  A simply supported beam \( AB \) supports a trapezoidally distributed load (see figure). The intensity of the load varies linearly from 50 kN/m at support \( A \) to 30 kN/m at support \( B \).

Calculate the shear force \( V \) and bending moment \( M \) at the midpoint of the beam.

Problem 4.5-3  Draw the shear-force and bending-moment diagrams for a cantilever beam \( AB \) carrying a uniform load of intensity \( q \) over one-half of its length (see figure).

Problem 4.5-6  A simple beam \( AB \) subjected to clockwise couples \( M_1 \) and \( 2M_1 \) acting at the third points is shown in the figure.

Draw the shear-force and bending-moment diagrams for this beam.

Problem 4.5-12  The beam \( AB \) shown in the figure supports a uniform load of intensity 3000 N/m acting over half the length of the beam. The beam rests on a foundation that produces a uniformly distributed load over the entire length.

Draw the shear-force and bending-moment diagrams for this beam.

Problem 4.5-26  The compound beam \( ABCDE \) shown in the figure consists of two beams \( (AD \) and \( DE) \) joined by a hinged connection at \( D \). The hinge can transmit a shear force but not a bending moment. The loads on the beam consist of a 4-kN force at the end of a bracket attached at point \( B \) and a 2-kN force at the midpoint of beam \( DE \).

Draw the shear-force and bending-moment diagrams for this compound beam.