A “simply supported” (weightless) beam, of length \( L \), carries a load \( P \) at midspan. Why are the reactions at \( A \) and \( C \) equal, each of magnitude \( P/2 \), and acting up on the pins at the ends?

Determine how the internal (bending) moment, \( M_b \), and internal (shear) force, \( V \), vary with \( x \) and \( P \) and \( L \).