

11. A round column carries an axial force $P \sim N(80, 6^2)$ kN. It has a diameter of $d = 40$ mm and its ends are pinned as shown in the figure. The modulus of elasticity is $E = 300$ GPa. If the length of the column is $l \sim N(1.5, 0.1^2)$ m, and P and l are independent, determine the probability of bending failure using the First Order Second Moment Method.

Answer: $p_f = 9.354(10^{-5})$

