

7-2. The minimum radius of curvature of a pole is estimated when the sportsman is performing a pole vault. If the minimum radius of curvature of the pole is 4.2 m, and the allowable bending stress is $S_a \sim N(760, 40^2)$ MPa, determine the probability of failure. Given that the pole has a diameter of 36 mm and its material has a Young's modulus of $E \sim N(131, 10^2)$ GPa. Assume E and S_a are independent. (**Ans.** $p_f = 3.5302 \times 10^{-4}$)