

66. A uniform load of $w \sim N(500, 50^2)$ lbf/in is applied to a beam with a round cross section shown in the figure. The diameter of the beam is $d = 3$ in. If the allowable bending stress is $S_a \sim N(60, 6^2)$ kpsi, estimate the probability of failure using FOSM. Assume that w and S_a are independent.

Answer: $p_f = 8.37(10^{-4})$

