

5-6. Force F is exerting on the piston of a thin-walled cylinder as shown below. The diameter of the piston is 12 in, and the wall has a thickness of 2 in. The internal pressure caused by F follows $p \sim N(60, 5^2)$ psi. If the allowable stress for this cylinder is $p_a \sim N(300, 20^2)$ psi, determine the probability of failure of the cylinder. (Ans. $p_f = 7.9 \times 10^{-7}$)

