1-18. The system is subjected to a normally distributed force $P \sim N\left(800, 80^2\right)$ lb as shown. What is the minimum cross sectional area that beam AC can have if the maximum normal stress is $\sigma_a \sim N\left(120, 14^2\right)$ psi at point B and the probability of failure must be less than 10^{-4}? Assume P and σ_a are independent. (**Ans.** $A = 62.32$ in^2)