

2-4. A wooden beam is subjected to a normally distributed load $v=Cx$ lb/ft, where $C \sim N(10,1.5^2)$. The beam has a cross-sectional area $A=9$ in² and a modulus of elasticity $E=32 \times 10^3$ ksi. The length is $L=15$ ft. If the allowable displacement of B is $\delta_a=0.05$ in, what is the probability of failure? (Ans. $p_f=6.64 \times 10^{-4}$)

