25. A rod *OC* is subjected to an uniform load of $w \sim N(2000,\ 200^2)$ lbf/in. The rod *OD* has a diameter of $d = 2$ in, and its yield strength is $S_y \sim N(20, 2^2)$ kpsi. If w and S_y are independent, estimate the probability of failure using the First Order Second Moment Method.

Answer: $p_f = 1.31(10^{-5})$