Homework 2

The position of a slider-crank mechanism is required to be $s_a = 92.6$ mm when $\theta = 25^\circ$. If the actual position s is outside the tolerance range $s_a \pm 0.6$ mm, it is considered that a failure occurs. The random variables are independent and follow normal distributions of $a \sim N(32, 0.02^2)$ mm , $b \sim N(65, 0.15^2)$ mm . Use the First Order Second Moment (FOSM) method to calculate the probability of failure.

(**Ans.** $p_f = 1.1459 \times 10^{-4}$)