

3-8. A rod has a diameter of 40 mm, and it is subjected to two torques, $T_1 \sim N(450, 30^2)$ N·m and $T_2 \sim N(600, 50^2)$ N·m. The allowable torsional stress of this rod is $\tau_a \sim N(140, 15^2)$ MPa .

Determine the probability of failure of this rod. Assume that τ_a , T_1 and T_2 are independent.

(Ans. $p_f = 1.85 \times 10^{-4}$)

