35. A shaft has an allowable shear stress $\tau_a \sim N(200, 20^2)$ MPa. If it has a round cross seciton with a diameter $d \sim N(80, 0.5^2)$ mm, estimate the mean and standard deviation of the power that can be transmitted at 2000 rpm using the First Order Second Moment Method. Note that d and τ_a are independent.

Answer: $\mu_H = 4210.7$ kW, $\sigma_H = 428.4$ kW