2-25. The 100-kg block is at rest initially. Then a force $F = 500$ N is applied to the block with an angle $\theta = 45^\circ$. If the coefficient of kinetic friction between the floor and the block is normally distributed $\mu_k \sim N(0.2, 0.02^2)$, determine the power supplied by F when $t = 3$ s.

Solution: $P \sim N(918.98, 283.10^2)$ W.