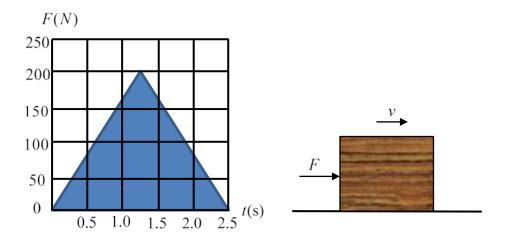2-8. The force acting on a block of 20 kg is shown in the graph. At $t = 0\,\text{s}$, the speed of the block is $v_1 \sim N(2,0.2)$ m/s. The coefficient of kinetic friction between the block and ground is $\mu_k \sim N(0.2,0.02^2)$. Determine the distribution of the speed of the block when $t = 2.5\,\text{s}$.

Solution: $v_2 \sim N(9.59,0.53^2)$ m/s