2-6. The motor starts from rest and the block travels upward with a constant acceleration of $a = 3\,\text{m/s}^2$. If the mass of the block follows a normal distribution $m \sim N(50, 2^2)\,\text{kg}$, determine the distribution of the power output of the motor M when $t = 10\,\text{s}$. Neglect the mass of the pulleys and cable.

Solution: $P \sim N(19.22, 0.77^2)\,\text{kW}$