④ $\lambda(t) = \frac{6a}{T}\left(\frac{t}{T}\right)\left(1 - \frac{t}{T}\right)$

$T = 8 \quad ; \quad \lambda(t) = 24t - 3t^2$

$$\lambda t = \int_0^8 \lambda(t)\,.\,dt$$

$$= 24\left[\frac{t^2}{2}\right]_0^8 - 3\left[\frac{t^3}{3}\right]_0^8$$

$$= 24\left(\frac{64}{2} - 0\right) - \left(8^3 - 0^3\right)$$

$$= 24(32) - (64 \times 8)$$

$$= 768 - 512$$

$$= 256$$

$$\begin{array}{r} 32 \\ \times 24 \\ \hline 128 \\ 640 \\ \hline 768 \end{array}$$

$$P(0 \le N \le 260) = \sum_{m=0}^{260} \frac{(256)^m e^{-256}}{m!}$$

$$= 0.6144$$

$$P(N > 260) = 1 - 0.6144$$
$$= 0.3856$$