

PROOF OF FORMULA 3.351.8

$$\int_0^a x^2 e^{-\mu x} dx = \frac{2}{\mu^3} - \frac{e^{-a\mu}}{\mu^3} (2 + 2a\mu + a^2 \mu^2)$$

Formula 3.351.1 states that

$$\int_0^a x^n e^{-\mu x} dx = \frac{n!}{\mu^{n+1}} - e^{-a\mu} \sum_{k=0}^n \frac{n!}{k!} \frac{a^k}{\mu^{n-k+1}}.$$

The result follows by taking $n = 2$.