# PROOF OF FORMULA 4.351.2

$$\int_0^1 e^{\mu x}(\mu x^2 + 2x) \ln x \, dx = \frac{1}{\mu^2} \left[ (1 - \mu)e^\mu - 1 \right]$$

Observe that
$$\frac{d}{dx}\left(x^2 e^{\mu x}\right) = (2x + \mu x^2)e^{\mu x}.$$
The result now follows by integration by parts.