PROOF OF FORMULA 2.326

$$\int \frac{xe^{ax}}{(1+ax)^2}dx = \frac{e^{ax}}{a^2(1+ax)}$$

Let $u = 1 + ax$ to obtain

$$\int \frac{xe^{ax}}{(1+ax)^2}dx = \frac{1}{ea^2}\left(\int \frac{e^u}{u}du - \int \frac{e^u}{u^2}du\right).$$

The values

$$\int \frac{e^u}{u}du = \mathrm{Ei}(u)$$

and

$$\int \frac{e^u}{u^2}du = -\frac{e^u}{u} + \mathrm{Ei}(u)$$

given in 2.325.1 and 2.325.2, respectively, give the result.