

**PROOF OF FORMULA 3.321.3**

$$\int_0^{\infty} e^{-q^2 x^2} dx = \frac{\sqrt{\pi}}{2q}$$

Let  $t = qx$  to obtain

$$\int_0^{\infty} e^{-q^2 x^2} dx = \frac{1}{q} \int_0^{\infty} e^{-t^2} dt.$$

The result now follows from the value of the normal integral

$$\int_0^{\infty} e^{-t^2} dt = \frac{\sqrt{\pi}}{2}.$$