PROOF OF FORMULA 3.322.1

$$\int_a^\infty e^{-x^2/4b-cx}\,dx = \sqrt{\pi b}\,e^{bc^2}\,\left[1-\operatorname{erf}\left(\frac{a}{2\sqrt{b}}+\sqrt{b}c\right)\right]$$

Complete the square to get

$$-\left(\frac{x^2}{4b}+cx\right) = -\left(\left[\frac{x}{2\sqrt{b}}+c\sqrt{b}\right]^2 - bc^2\right),$$

and use the change of variables $v = \frac{x}{2\sqrt{b}} + c\sqrt{b}$ to produce

$$\int_a^\infty e^{-x^2/4b-cx}\,dx = 2\sqrt{b}\,e^{bc^2}\int_r^\infty e^{-v^2}\,dv,$$

with

$$r = \frac{a}{2\sqrt{b}} + c\sqrt{b}.$$

This is the result.