**PROOF OF FORMULA 3.472.1**

$$\int_0^\infty \left(1 - e^{-a/x^2}\right) e^{-bx^2}\, dx = \frac{\sqrt{\pi}}{2\sqrt{b}} \left(1 - e^{-2\sqrt{ab}}\right)$$

Start with

$$\int_0^\infty \left(1 - e^{-a/x^2}\right) e^{-bx^2}\, dx = \int_0^\infty e^{-bx^2}\, dx - \int_0^\infty e^{-a/x^2 - bx^2}\, dx.$$

The change of variables $t = \sqrt{b}x$ gives $\sqrt{\pi}/2\sqrt{b}$ as the value of the first integral. The second one is evaluated as $\sqrt{\pi}e^{-2\sqrt{ab}}/2\sqrt{b}$ in formula 3.325.