

PROOF OF FORMULA 3.472.3

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

The change of variables $t = 1/x$ yields

$$\int_0^\infty \exp\left(-\frac{a}{x^2} - bx^2\right) \frac{dx}{x^2} = \int_0^\infty \exp(-at^2 - b/t^2) dt.$$

This integral is evaluated in 3.325.