PROOF OF FORMULA 4.274

$$\int_0^{1/e} \frac{x^{1/q}\,dx}{x\sqrt{-(1+\ln x)}} = \frac{\sqrt{qe}}{\sqrt[q]{e}}$$

The change of variables $t = -(1+\ln x)$ gives

$$\int_0^{1/e} \frac{x^{1/q}\,dx}{x\sqrt{-(1+\ln x)}} = e^{-1/q}\int_0^{\infty} \frac{e^{-t/q}}{\sqrt{t}}\,dt.$$

The change of variables $t = qy^2$ gives the result.