PROOF OF FORMULA 3.469.3

$$\int_0^\infty \left(e^{-x^4} - e^{-x^2}\right) \frac{dx}{x} = \frac{\gamma}{4}$$

Formula 3.476.2 states that

$$\int_0^\infty \left[\exp(-x^p) - \exp(-x^q)\right] \frac{dx}{x} = \frac{p-q}{pq}\gamma.$$

Now put $p = 4$ and $q = 2$ to obtain the current integral.