

## Exercises

E15.27 [1C2] Prerequisites: [1C0]. Difficulty: \*\*. Show identities

$$\int_0^1 x^{-x} dx = \sum_{n=1}^{\infty} n^{-n} \quad (= \sim 1.291285997 \dots) \quad (15.28)$$

$$\int_0^1 x^x dx = \sum_{n=1}^{\infty} (-1)^{n+1} n^{-n} \quad (= \sim 0.783430510712 \dots) \quad (15.29)$$

(Hint: use the Taylor series  $e^z$ , and substitute  $z = x \log(x)$ ; use the exercise [1C0] above.)