Exercises

E15.1 [1B0]Prerequisites:Fundamental theorem of integral calculus.

Suppose that $f : [a, b] \to \mathbb{R}$ is continuous and $g : \mathbb{R} \to \mathbb{R}$ has class C^1: prove that

$$\int_a^b f(g(t))g'(t)\,\mathbb{d}t = \int_{g(a)}^{g(b)} f(s)\,\mathbb{d}s \quad .$$

Solution 1. *[1B2]*

Note that for this result it is not necessary to assume that g is monotonic.