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**There are Many Totally Convex Functions**

Let  $K$  be a convex subset of a normed linear space and let  $R^1$  denote the real line. We show that there are many (in the sense of Baire category) strictly convex and totally convex functions  $f: K \rightarrow R^1$ . It is known that the existence of such functions is crucial in numerous optimization algorithms.

**Keywords:** Complete metric space, essentially strictly convex function, generic property, strictly convex function, totally convex function.

**MSC:** 46N10, 52A41, 54E50, 54E52