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A d.c. C^1 function need not be difference of convex C^1 functions

Abstract: In [2] a delta convex function on $\mathbb{R}^2$ is constructed which is strictly differentiable at 0 but it is not representable as a difference of two convex function of this property. We improve this result by constructing a delta convex function of class $C^1(\mathbb{R}^2)$ which cannot be represented as a difference of two convex functions differentiable at 0. Further we give an example of a delta convex function differentiable everywhere which is not strictly differentiable at 0.