Algebraic closure of generalized convex sets

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Algebraic convex sets over a principal ideal subdomain R of the ring of real numbers are described as certain subreducts of affine spaces over R. Among them, geometric convex sets are described as the intersections of convex subsets of real affine spaces with corresponding affine spaces over R. We introduce the concept of the algebraic closure of such convex sets, and examine some of its properties. In particular, we show that the algebraic and topological closures of geometric convex subsets of finite-dimensional affine spaces over R coincide.

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