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$\mathcal{F}$ -Convexity of Real Functions

Let $\mathcal{F}$ be a family of sets in $\mathbb{R}^d$. A set $M \subset \mathbb{R}^d$ is called $\mathcal{F}$ -convex if for any points $x, y \in M$ there is a set $F \in \mathcal{F}$ such that $x, y \in F$ and $F \subset M$. A function $f : \mathbb{R} \rightarrow \mathbb{R}$ is called $\mathcal{F}$ -convex if its epigraph is $\mathcal{F}$ -convex. In this paper we investigate various $\mathcal{F}$ -convexities for real functions.

Keywords: Rectangular and rq-convexity, C-convexity, Gamma-convexity, right convexity, real functions.

MSC: 52A10, 52A20.