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Inequalities for Lattice Constrained Planar Convex Sets

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Abstract: Every convex set in the plane gives rise to geometric functionals such as the area, perimeter, diameter, width, inradius and circumradius. In this paper, we prove new inequalities involving these geometric functionals for planar convex sets containing zero or one interior lattice point. We also conjecture two results concerning sets containing one interior lattice point. Finally, we summarize known inequalities for sets containing zero or one interior lattice point.



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