Title: Extremal Polyominoes
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Abstract: The thesis is focused on polyominoes and other planar figures consisting of regular polygons, namely polyiamonds and polyhexes. We study the basic geometrical properties: the perimeter, the convex hull and the bounding rectangle/hexagon. We maximise and minimise these parameters and for the fixed size of the polyomino, denoted by n. We compute the extremal values of a chosen parameter and then we try to enumerate all polyominoes of the size n, which has the extremal property. Some of the problems were solved by other authors. We summarise their results. Some of the problems were solved by us, namely the maximal bounding rectangle/hexagon and maximal convex hull of polyiamonds. There are still several topics which remain open. We summarise the literature and offer our observations for the following scientists.
Keywords: Polyomino, convex hull, extremal questions, plane