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Don't fence me in!

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Summary: Getting students to think about the relationships between area and perimeter beyond the formulas for these measurements is never easy. An interesting, nonroutine, and accessible problem that will stimulate such thoughts is the lattice octagon problem. A “lattice polygon” is a polygon whose vertices are points of a regularly spaced array. Therefore, a “rectangular lattice octagon” is a lattice polygon in which each of the eight sides is perpendicular to its adjacent sides. This article provides a framework for solving this maximization problem and other problems that involve lattice polygons. In addition, it suggests ways to use this problem in the classroom and offers related problems that students can investigate. (ERIC)

Classification: G40 C30

Keywords: geometric concepts; plane geometry; secondary school mathematics; mathematics activities; teaching methods; manipulative materials; problem solving; computation

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