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Sommario/riassunto

The Geometry of Numbers presents a self-contained introduction to the geometry of numbers, beginning with easily understood questions about lattice-points on lines, circles, and inside simple polygons in the plane. Little mathematical expertise is required beyond an acquaintance with those objects and with some basic results in geometry. The reader moves gradually to theorems of Minkowski and others who succeeded him. On the way, he or she will see how this powerful approach gives improved approximations to irrational numbers by rationals, simplifies arguments on ways of representing integers as sums of squares, and provides a natural tool for attacking problems involving dense packings of spheres. An appendix by Peter Lax gives a lovely geometric proof of the fact that the Gaussian integers form a Euclidean domain, characterizing the Gaussian primes, and proving that unique factorization holds there. In the process, he provides yet another glimpse into the power of a geometric approach to number theoretic problems.