

MATEMATISKA INSTITUTIONEN
STOCKHOLMS UNIVERSITET
Avd. Matematik

SJÄLVSTÄNDIGT ARBETE I MATEMATIK

Onsdagen den 14 januari kl. 10.00–11.00 presenterar Dennis Öberg sitt arbete “Ehrhart polynomials of lattice triangles” (15 högskolepoäng, grundnivå).

Handledare: Benjamin Nill

Plats: Sal 33, hus 5, Kräftriket

Sammanfattning: The Ehrhart polynomial of a lattice polytope counts the number of lattice points on the boundary and the number of lattice points strictly in the interior of dilations of the polytope. In this thesis, we show that there are infinitely many Ehrhart polynomials of lattice polygons which are not the Ehrhart polynomial of any lattice triangle.

Let (b, i) be a given pair of non-negative integers. We give conditions on (b, i) for there to be a lattice triangle with b boundary points and i interior points. For $b + 2(i - 1) = p$, where p is prime, the condition is particularly simple. This gives us a class of (b, i) for which we know there are no lattice triangles. In addition, we conjecture the non-existence of lattice triangles for other large classes of (b, i) .

In the course of our work, we develop tools to study the patterns of for which (b, i) there is a lattice triangle.

Alla intresserade är välkomna!