The Frobenius problem for numerical semigroups ☆

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In this paper, we characterize those numerical semigroups containing
<*n*1,*n*2**>**. From this characterization, we give formulas for the
genus and the Frobenius number of a numerical semigroup. These
results can be used to give a method for computing the genus and
the Frobenius number of a numerical semigroup with embedding
dimension three in terms of its minimal system of generators.

1. Introduction

Let Z and N be the sets of integers and nonnegative integers, respectively. A numerical semigroup

is a subset *S* of N that is closed under addition, 0 ∈ *S* and N*S* has finitely many elements.

Given a nonempty subset *A* of N we will denote by *_A_* the submonoid of *(*N,+*)* generated by *A*, that is,

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