

## Classes of Numerical Semigroups with Embedding Dimension 3: An algorithm for Computing the Frobenius Number

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In this paper we present an algorithm for computing the Frobenius number of a numerical semigroup  $G$  with embedding dimension equal to 3 such that

$$G = [n; \{1, j\}, \{b_i, b_j\}], \quad \text{GCD}(n, i) = \text{GCD}(n, j) = 1, n < x < y$$
$$x = b_i n + i \quad \text{and} \quad y = b_j n + j$$

As a consequence, we give an algorithm for determining the set  $F$  of all numerical semigroups with embedding dimension 3, given its multiplicity  $n$  and the corresponding remainders  $i$  and  $j$  of the generating elements  $x$  and  $y$  modulo  $n$ , i.e. the set

$$\mathcal{F} = \{[n; \{1, j\}, \{b_i, b_j\}] \mid b_i, b_j \in \mathbb{N}, n < b_i n + i < b_j n + j\}$$