Programming theory - problems sheet - 2

Write down a specification of the following problems.

1. Determine the number of digits of a given positive integer.
2. Determine the greatest value of function $f : \mathbb{Z} \to \mathbb{Z}$ over the interval $[m..n]$.
3. Decide whether a given positive integer number is prime or not.
4. Find the last argument in $[m..n]$ where the value of $f : \mathbb{Z} \to \mathbb{Z}$ is positive.
5. Given an array containing integer numbers. In case there is a positive element in the array then find the greatest element of the array, otherwise find the smallest.
6. Given an array x containing integer numbers. Fill the array y, such that the sum of the first i number of elements in array x equals to $y[i]$, for any index i.
7. Increment every element by 1 of a given array x containing integer numbers.