Math 29: Computability Theory

Spring 2024

 ${\rm PSET}\ 2 - -04/12/2024$

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Problem 1.

Show that the Fibonacci function, where f(0) = f(1) = 1 and f(n+2) = f(n+1) + f(n) is computable by building a register machine.

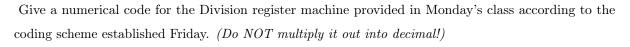
Problem 2.

Show that the set of powers of 2 is computable by building a Turing machine.

Problem 3.

Show that the set of multiples of 4 is computable by building a Turing machine.

Problem 4.



Problem 5.

Describe informally what process you would use to determine if the register machine coded by n contains a subtraction node. You may assume that the n you are given is a valid code for a register machine. You do not need to provide a machine which runs your process.