This is incomputable. Assume for the sake of contradiction that it is computable, so that there exists a Turing machine that computes . We can use to decide the halting problem. The halting problem asks whether a Turing machine halts on input . When given such an and input , we construct a new Turing machine that for four inputs excluding , we make always output on them. For input , we make it output if outputs either or . on inputs other than these five output . We now input into . If and only if outputs , then halts on . This decides the halting problem, which we know to be incomputable, so we’ve reached a contradiction. Thus, is incomputable.

pseudocode:

M\_new(M,x){

randomly select 4 inputs that are not x as x2, x3, x4, and x5;

if (x==x2 || x==x3 || x==x4 || x=x5){

return 1;

}

else if (x!=x){

return 0;

}

M(x);

return 1;

}