#include <stdio.h>

#include <math.h>

// Get size of the numbers

int getSize(long num)

{

int count = 0;

while (num > 0)

{

count++;

num /= 10;

}

return count;

}

long karatsuba(long X, long Y)

{

// Base Case

if (X <= 10 && Y <= 10)

return X \* Y;

// determine the size of X and Y

int size = fmax(getSize(X), getSize(Y));

// Split X and Y

int n = (int)ceil(size / 2.0);

long p = (long)pow(10, n);

long a = (long)floor(X / (double)p);

long b = X % p;

long c = (long)floor(Y / (double)p);

long d = Y % p;

printf("X = %d \t Y = %d \t n = %d \t a = %d \t b = %d \t c = %d \t d = %d \n", X, Y, n, a, b, c, d);

// Recur until base case

long ac = karatsuba(a, c);

long bd = karatsuba(b, d);

long e = karatsuba(a + b, c + d) - ac - bd;

printf("ac = %d,\t bd = %d, \t e = %d \n", ac, bd, e);

// return the equation

return (long)(pow(10 \* 1L, 2 \* n) \* ac + pow(10 \* 1L, n) \* e + bd);

}

int main() {

// Write C code here

printf("Hello world \n");

long ans = karatsuba(123, 908);

printf("%ld", ans);

return 0;

}