

D. Lucky Probability

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Petya loves lucky numbers. We all know that lucky numbers are the positive integers whose decimal representations contain only the lucky digits **4** and **7**. For example, numbers **47**, **744**, **4** are lucky and **5**, **17**, **467** are not.

Petya and his friend Vasya play an interesting game. Petya randomly chooses an integer p from the interval $[p_l, p_r]$ and Vasya chooses an integer v from the interval $[v_l, v_r]$ (also randomly). Both players choose their integers equiprobably. Find the probability that the interval $[\min(v, p), \max(v, p)]$ contains exactly k lucky numbers.

Input

The single line contains five integers p_l, p_r, v_l, v_r and k ($1 \leq p_l \leq p_r \leq 10^9, 1 \leq v_l \leq v_r \leq 10^9, 1 \leq k \leq 1000$).

Output

On the single line print the result with an absolute error of no more than 10^{-9} .

Examples

input
1 10 1 10 2
output
0.32000000000000

input
5 6 8 10 1
output
1.00000000000000

Note

Consider that $[a, b]$ denotes an interval of integers; this interval **includes** the boundaries. That is,

In first case there are 32 suitable pairs:

(1, 7), (1, 8), (1, 9), (1, 10), (2, 7), (2, 8), (2, 9), (2, 10), (3, 7), (3, 8), (3, 9), (3, 10), (4, 7), (4, 8), (4, 9), (4, 10), (7, 10), (8, 10), (9, 10), (10, 10), so answer is 32 / 100.

In second case Petya always get number less than Vasya and the only lucky 7 is between this numbers, so there will be always 1 lucky number.