



Problem G
Maximum

Input File: G.IN

Output File: standard output

Program Source File: G.C, G.CPP, G.JAVA

Let x_1, x_2, \dots, x_m be real numbers satisfying the following conditions:

a) $-\frac{1}{\sqrt{a}} \leq x_i \leq \sqrt{a}$;

b) $x_1 + x_2 + \dots + x_m = b * \sqrt{a}$
for some integers a and b ($a > 0$).

Determine the maximum value of $x_1^p + x_2^p + \dots + x_m^p$ for some even positive integer p .

Each input line contains four integers: m, p, a, b ($m \leq 2000, p \leq 12, p$ is even).
Input is correct, i.e. for each input numbers there exists x_1, x_2, \dots, x_m satisfying the given conditions.

For each input line print one number – the maximum value of expression, given above. The answer must be rounded to the nearest integer.

Input	Output
1997 12 3 -318	189548
10 2 4 -1	6