Problem D: Determinant Fun
Time Limit: 5 seconds

Description

Let $M_N = (m_{ij})$ be an NxN matrix, with integer constants Q, K, A, B satisfying:

$m_{ij} = A\cos((i+Qj)x)+B\sin((i+Qj)x)$, *where* $0 \le i, j < N$, *with* $x = K\frac{\pi}{N}$.

Given an integer interval [L, R], compute $\sum_{N=L}^{R} det(I+M_N)$, where I is the identity matrix, and *det* is the determinant of a square matrix.

Input

A number of of inputs (≤**1000**), each line with integers Q, K, A, B, L, R. They satisfy, $0 < K, A, B, L, R \le 10^9$, $0 < L \le R \le 10^9$, $|Q| \le 1$. Additionally, if Q=0 and K is odd, then $R - L \le 300$.

Output

For each input, output the answer on one line, rounded to **6** digits after the decimal.

Sample Input

```
-1 12 10 8 3 10
1 13 7 9 3 10
0 11 10 7 3 10
```

Sample Output

```
13607.000000
-12342.000000
57.083113
```