

The Table

Considering a table of size x rows by y columns, each alternate position in the table has a number assigned to it ordering from left to right, top to bottom. Both indices of table's rows and columns indicating their position in the table start from zero. The first number assigned to the first position in the table whose coordinate is $(0, 0)$ always starts from one, and then the next number to be assigned to every other position of the table will be increased from the previous number by *diff*, one input datum. The first number in the first row of the table will be assigned to the column indexing 0, the first number in the second row of the table will be assigned to the column indexing 1, the first number in the third row will be assigned to the column indexing 0, the first number in the fourth row will be assigned to the column indexing 1, and so on. Thus, once the table is fully assigned, it will look as the following examples.

Example 1: A fully assigned table of size 9×10 with $diff = 2$.

	0	1	2	3	4	5	6	7	8	9	← Column
0	1		3		5		7		9		
1		11		13		15		17		19	
2	21		23		25		27		29		
3		31		33		35		37		39	
4	41		43		45		47		49		
5		51		53		55		57		59	
6	61		63		65		67		69		
7		71		73		75		77		79	
8	81		83		85		87		89		

↑
Row

Example 2: A fully assigned table of size 5×5 with $diff = 3$.

	0	1	2	3	4	← Column
0	1		4		7	
1		10		13		
2	16		19		22	
3		25		28		
4	31		34		37	

↑
Row

From the fully assigned table, a number *num*, which is an input datum, assigned to a position in the table may have up to four neighborhoods with a number assigned to, connected in four diagonally different directions in order; the north–west NW, the north–east NE, the south–west SW, and the south–east SE, respectively. For example, from the table in Example 1 above, the four diagonal neighborhoods of *num* = 45 in directions NW, NE, SW, and SE are 33, 35, 53, and 55, respectively. Also, from the table in Example 2 above, the number 16 has two neighborhoods in directions NE and SE which are numbers 10 and 25, respectively but has no neighborhoods in the directions NW and SW.

Please help us find the coordinate and four neighborhoods of a given number, *num*, from the table with features as explained.

Input:

Input has one line of four integers representing *num*, *diff*, *x*, and *y*, respectively, each of which is separated by a white space where $1 \leq num \leq 4,290,000,000$; $1 \leq diff \leq 20$; $5 \leq x \leq 45,000$; and $5 \leq y \leq 45,000$.

Output:

Output has five lines as follows.

- The first line has two numbers, row index and column index of *num*, separated by a white space.
- Each of lines 2 to 5 is the number assigned to table at the position of one of *num*'s four neighborhoods in direction NW, NE, SW, and SE, respectively. Note that any direction which does not have neighborhood of *num* will be skipped and thus that line will be left blank.

Example:

Input 45 2 9 10	Output 4 4 33 35 53 55
Input 16 3 5 5	Output 2 0 10 25