

## Problem F. Rhythm Game

Input file: *standard input*  
Output file: *standard output*  
Time limit: 2 seconds  
Memory limit: 256 mebibytes

The famous artist Karuna is playing the rhythm game.

The artist is trying to hit the notes in a song. The song is a sequence of  $N$  notes.

The scoring system used in this game is as follows:

- At beginning of the song (before first note), the score is 0 and combo bonus is 0.
- Each note has its own cost. The cost of  $i$ -th note is  $A_i$ .
- The combo bonus value is equal to 0 if Karuna misses current note, or  $C_j$  if Karuna hits this note and there are  $j$  notes in a row which Karuna hits.
- If Karuna hits the  $i$ -th note and the combo length after that is  $j$ , the value of  $A_i \cdot C_j$  is added to the score.
- If Karuna misses the note, the length of the combo is reset to 0. If it was non-zero before (in other words, if Karuna hit the previous note), then the combo ending score  $P$  is added to the score.
- If Karuna hits the last note in the song, the combo ending score  $P$  is added to the score as well.

Karuna's skills allow him to hit no more than  $K$  notes during the song. For every note, he may choose to hit it or to miss it, as long as he hits no more than  $K$  notes in total.

Given all the parameters, tell the maximum score Karuna can get.

### Input

The first line of the input contains three integers  $N$ ,  $K$  and  $P$  ( $1 \leq N, K \leq 2000$ ,  $-10^9 \leq P \leq 10^9$ ): the number of notes in the song, the maximum number of notes Karuna can hit and combo break score, respectively.

The second line contains  $N$  integers separated by spaces. The  $i$ -th number represents the score  $A_i$  for hitting the  $i$ -th note ( $0 \leq A_i \leq 10^5$ ).

The third line contains  $N$  integers separated by spaces. The  $j$ -th number represents the score  $C_j$  for a combo of length  $j$  ( $-10^5 \leq C_j \leq 10^5$ , and for all  $1 \leq j \leq N-1$ , it is guaranteed that  $C_j \geq C_{j+1}$ ).

### Output

Print one integer: the maximum score Karuna can get in the Rhythm Game.

### Example

| standard input                  | standard output |
|---------------------------------|-----------------|
| 5 5 1<br>5 4 3 2 1<br>5 4 3 2 1 | 57              |