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PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

## E. Excitation of Atoms

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

Mr. Chanek is currently participating in a science fair that is popular in town. He finds an exciting puzzle in the fair and wants to solve it.

There are N atoms numbered from 1 to N. These atoms are especially quirky. Initially, each atom is in normal state. Each atom can be in an excited. Exciting atom i requires  $D_i$  energy. When atom i is excited, it will give  $A_i$  energy. You can excite any number of atoms (including zero).

These atoms also form a peculiar one-way bond. For each i,  $(1 \leq i < N)$ , if atom i is excited, atom  $E_i$  will also be excited at no cost. Initially,  $E_i$  = i+1. Note that atom N cannot form a bond to any atom.

Mr. Chanek must change **exactly** K bonds. Exactly K times, Mr. Chanek chooses an atom i,  $(1 \leq i < N)$  and changes  $E_i$  to a different value other than i and the current  $E_i$ . Note that an atom's bond can remain unchanged or changed more than once. Help Mr. Chanek determine the maximum energy that he can achieve!

**note:** You must first change **exactly** K bonds before you can start exciting atoms.

### Input

The first line contains two integers N K  $(4 \le N \le 10^5, 0 \le K < N)$ , the number of atoms, and the number of bonds that must be changed.

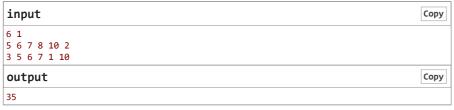
The second line contains N integers  $A_i$   $(1 \le A_i \le 10^6)$ , which denotes the energy given by atom i when on excited state.

The third line contains N integers  $D_i$   $(1 \le D_i \le 10^6)$ , which denotes the energy needed to excite atom i.

# Output

A line with an integer that denotes the maximum number of energy that Mr. Chanek can get.

### Example



### Note

An optimal solution to change  $E_5$  to 1 and then excite atom 5 with energy 1. It will cause atoms 1, 2, 3, 4, 5 be excited. The total energy gained by Mr. Chanek is (5 + 6 + 7 + 8 + 10) - 1 = 35.

Another possible way is to change  $E_3$  to 1 and then exciting atom 3 (which will excite atom 1, 2, 3) and exciting atom 4 (which will excite atom 4, 5, 6). The total energy gained by Mr. Chanek is (5+6+7+8+10+2)-(6+7)=25 which is not optimal.

### 2020 ICPC, COMPFEST 12, Indonesia Multi-Provincial Contest (Unrated, Online Mirror, ICPC Rules, Teams Preferred)

# s, Teams Preferred Finished



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Start virtual contest

### → Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

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