2 1 1
1 2 1
1 2 1
1 2 1
1 1 2

4 4 4 4 4

3 3 3
2 1 1
1 2 1
1 1 2

7 7 7

2L+M

2R+M

L M R

X X X

incV = L+R+2M

2 1
1 2 1
1 2 1
1 1 2

4 4 4 4

f, f+4, f+8 . . . .

based on sum%4 one of these can be the ans

le18 +1, le18+2, le18+3, le18+4

so now you know what the $\boxed{\text{final value is}}$ can you give the operations?

What else?

2 1 2

a_1 a_2 a_3

$fv = 7$

$a_3 + a_2 + 2a_1 = 5$

$a_1 + a_3 + 2a_2 = 6$

$a_1 + a_2 + 2a_3 = 5$

$a_1 = a_3$

$a_1 + a_2 = 2$

$4a_1 + a_2 = 5$

$a_1 = a_2 = 1$

N equations and N variables and we need to solve this

Let's look at example for n = 5

$\underline{a_1}$ $\underline{a_2}$ $\underline{a_3}$ $\underline{a_4}$ $\underline{a_5}$

$$2a_i + a_{i-1} + a_{i+1} = x_i$$

$$\begin{bmatrix} a_{i-1} & a_i & a_{i+1} \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ 1 \end{bmatrix} = \begin{bmatrix} x_i \end{bmatrix}$$

$$\begin{bmatrix} a_5 & a_1 & a_2 \\ a_1 & a_2 & a_3 \\ a_2 & a_3 & a_4 \\ a_3 & a_4 & a_6 \\ a_4 & a_5 & a_6 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ 1 \end{bmatrix} = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \end{bmatrix}$$

How can we solve this, using a compute program?

$$4 \sum a_i = \sum x_i$$

$$\sum a_i = \frac{\sum x_i}{4}$$

a_1 a_2 $\overset{1}{a_3}$ $\overset{2}{a_4}$ $\overset{1}{a_5}$

d_1 d_2 d_3 d_4 d_5

$d_i = a_{i+1} - a_i$

$d_1 = a_2 - a_1$

$d_2 = a_3 - a_2 \quad +1$

$d_3 = a_4 - a_3 \quad +1$

$d_4 = a_5 - a_4 \quad -1$

$d_5 = a_1 - a_5 \quad -1$

$d_4 =$

You are given an array you can choose any i and do ai +=1 , ai+1 +=1, ai + 2 -= 1 and ai + 3 -=1

Can you turn the array to all zeroes?
Sum must be zero intially.
It is always zero initially.
How to solve?

$a_1 \quad a_2 \quad a_3 \quad a_4 \quad a_5$

I know exactly what the final value is..
it is zero

How to solve it if it was non cyclic? 1 1 -1 -1

$+a_4 = 0, + o_1$

$+a_5 = o_2$

0 0

$a_1 \quad a_2 \quad a_3 \quad a_4 \quad a_5$

o_1
o_2 1 1 -1 -1 $+o_1$

$a_1 \quad a_2 \quad a_3 \quad 0 \quad 0$

1 1 -1 -1

1 1 -1 -1
1 1 -1 -1
1 1 -1 -1

1 1 -1 -1

The more general version of this operation will be choose i, j such that
1 <= i, j <= n
and do

ai +=1
ai + 1 += 1
aj -= 1
aj + 1 -= 1

ok

Well if all the final numbers have to be zero and above condition will have to satisfy

So the op reduces to
such i

a_i += 1
a_i+1 += 1

OR

a_j += -1
a_j+1 += -1

It further reduces to sum at each parity must be zero

Let's look at some test cases

1 2 1 2 1

1 -1 1 -1 0

2 -1 0 -1 0

0 -2 1 -1

~~1 2 1 2 1 3 1~~

1 -1 1 -1 2 -2 0

sum of p1 = - sum of p2
The operation is
a_i += 1
a_i+1 += -1
Then we will be done