• Suppose each row and column have no equal copies of the same no.

∴ $x_i$ must occur 15 times in the square table.

By problem 13, one occurence of $x_i$ must be on the main diagonal, since 15 is odd. But this is a contradiction.

∴ No two no.s on the main diagonal are equal.

**Prob 16:** Can one make change of a 25-ruble bill, using in all ten bills each having a value of 1, 3 or 5 rubles?

Ans:) No, since the sum of evenly many odd numbers is always even.

$(2K_1+1)+(2K_2+1)+\ldots\ldots+(2K_{10}+1) = 2(K_1+\ldots+K_{10})+10$
$= \boxed{2(K_1+\ldots+K_{10}+1)}$

**Prob 17:** Pete bought a notebook containing 96 pages, and numbered them from 1 through 192. Victor tore out 25 pages of the notebook, and added up the 50 numbers he found on the pages. Could Victor have gotten 1990 as the sum?

Ans:) **Observation:** Any particular page has an odd no. in the front and an even no. in the back.

• On 25 pages, we will get 25 odd and 25 even no.s respectively.

• Since the no. of odds are odd, the total sum must be odd.

∴ It's not possible.

**Prob 18:** The product of 22 integers is equal to 1. Show that their sum cannot be zero.

Ans:) Since the no.s are integers, they can only take up the value +1 or −1.
Since the product is +1, the no. of negative 1's must be even.

• The summation of the integers can be: {−22, −18, −14, −10, −6, −2, 2, 6, 10, 14, 18, 22}
when the no. of −1's are: {22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0} respectively.