A simple algorithm for Swapping of any number of variables without taking any extra variable.

STEP-1

Declare the variables [Let **a,b,c,d,…..,n** So here we have to swap ‘n’ number of variables ] and take **input in all variables**.

STEP-2

Firstly add all the values of all the variables which you want to swap in one variable[ Let suppose in **‘a’** you can choose **any variable**

**a=a+b+c+d+….+n**

]

STEP-3

Now choose that variable where you want to store **‘a’** [ value of a will be transferred to that variable, Let suppose **‘b’** ]

STEP-4

Use the formula **b=a-(b+c+d+…..+n)**

Now value of a stored in ‘b’.

Now choose the variable where you want to store ‘b’.[Let suppose ‘c’]

**c= a-(b+c+d+…..+n)**

**Here the golden formula which is used for every swap is k=a-(b+c+d+….+n)**

STEP-5

At last the last variable in which we swapped have to swap that value of the variable to that variable which you choosed in step number 2.

[**a= a-(b+c+d+…..+n)** ]

STEP-6

EXIT.

/--------Examples------\

Swap 5 numbers like

1. a=10,b=20,c=30,d=40,e=50 🡪 a=20,b=30,c=40,d=50,e=10
2. a=10,b=20,c=30,d=40,e=50 🡪 a=30,b=40,c=50,d=10,e=20
3. a=10,b=20,c=30,d=40,e=50 🡪 a=50,b=10,c=20,d=30,e=40

Answers

1. a=a+b+c+d+e ii. a=a+b+c+d+e

e=a-(b+c+d+e) d=a-(b+c+d+e)

d=a-(b+c+d+e) b=a-(b+c+d+e)

c=a-(b+c+d+e) e=a-(b+c+d+e)

b=a-(b+c+d+e) c=a-(b+c+d+e)

a=a-(b+c+d+e) a=a-(b+c+d+e)

iii. a=a+b+c+d+e

b=a-(b+c+d+e)

c=a-(b+c+d+e)

d=a-(b+c+d+e)

e=a-(b+c+d+e)

a==a-(b+c+d+e)