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Lab report Question 1

**Problem Description on the problem**

The question is we are going to make a program that simulates a simple calculator. This program will started by read three integers and two operands. By then the program will run based on the operand.

X is Multiplication of two numbers.

D is Quotient of two numbers.

M is Remainder of two numbers.

A is Addition of two numbers.

S is Subtraction of two numbers.

In Mathematics we do multiplication, quotient and reminder first then come to addition and subtraction. Therefore a problem in this question is we need to consider which operand input by user and arrange the priority of the operands in order to calculate the correct output.

**Solution**

In writing code, we need to use nested if statements to determine the first and second operands, by then we make calculation for each and every pair of operands. For example if user input E F G as three integers and operand 1 is A(addition) and operand 2 is X(multiplication), we need to use an if statement to catch the first operand A and inside this if statement there are another if statements that catch second operand X. Then the system can arrange operand X come before operand A. Result, E + (F*G).

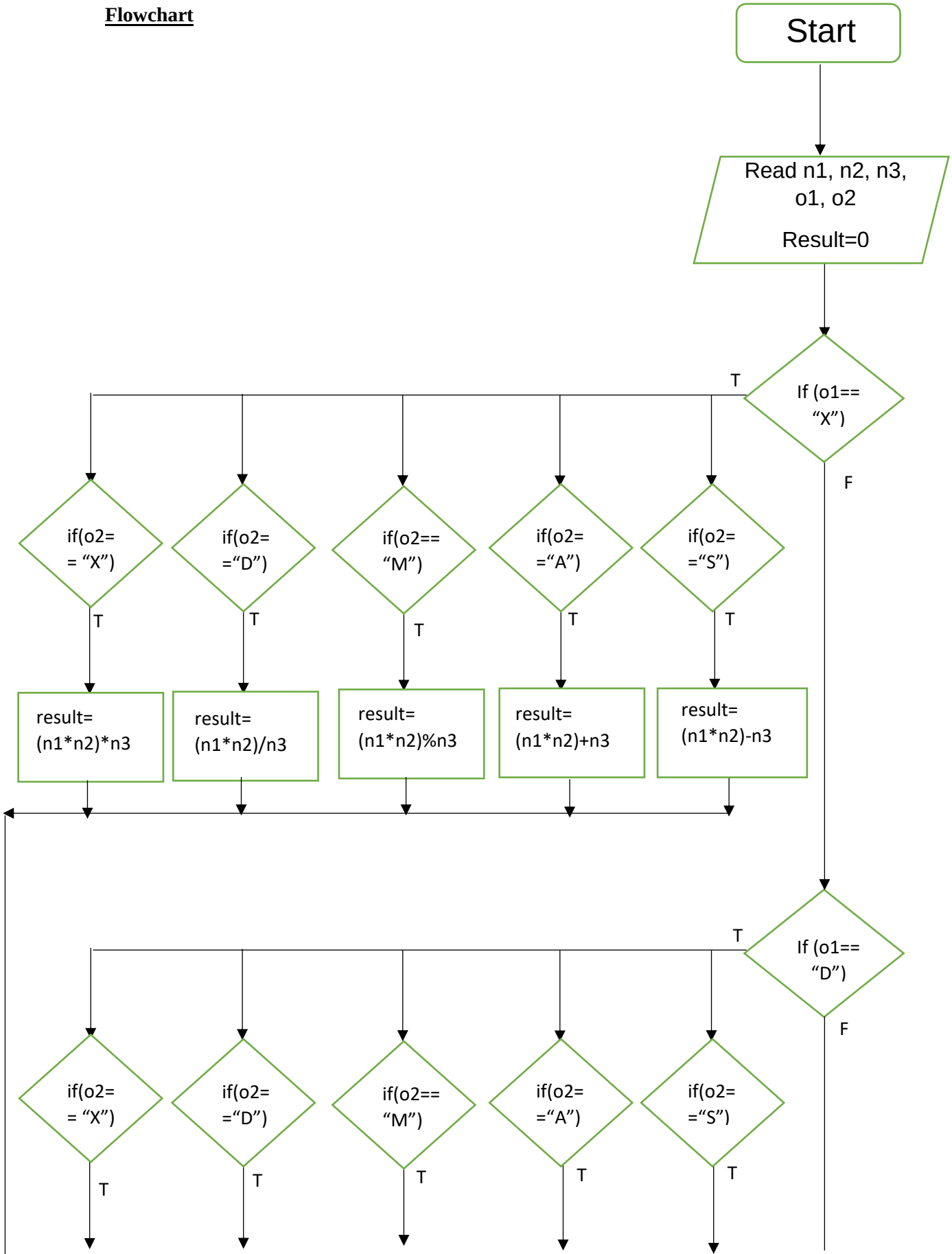
**Pseudocode**

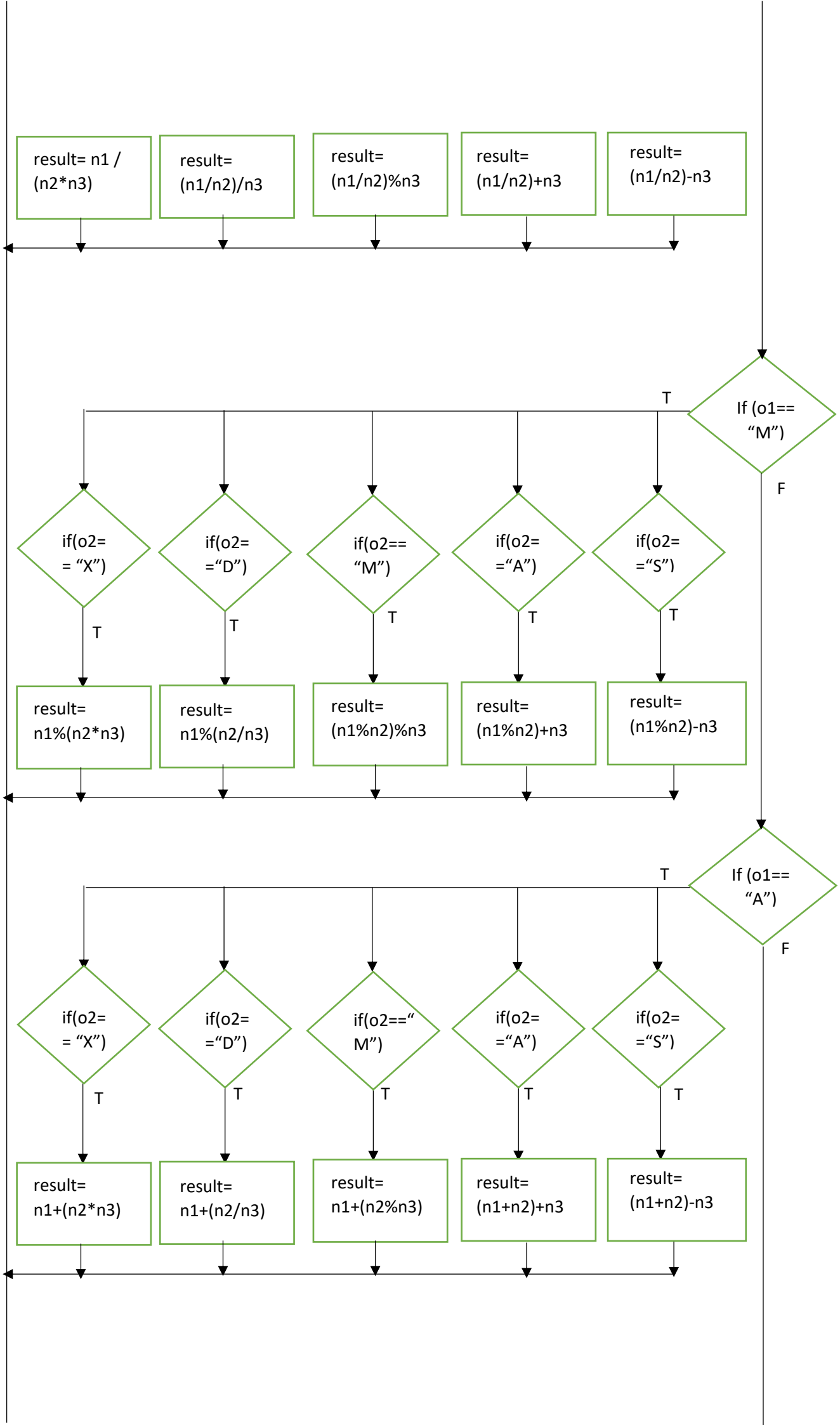
Input: n1, n2, n3, o1, o2

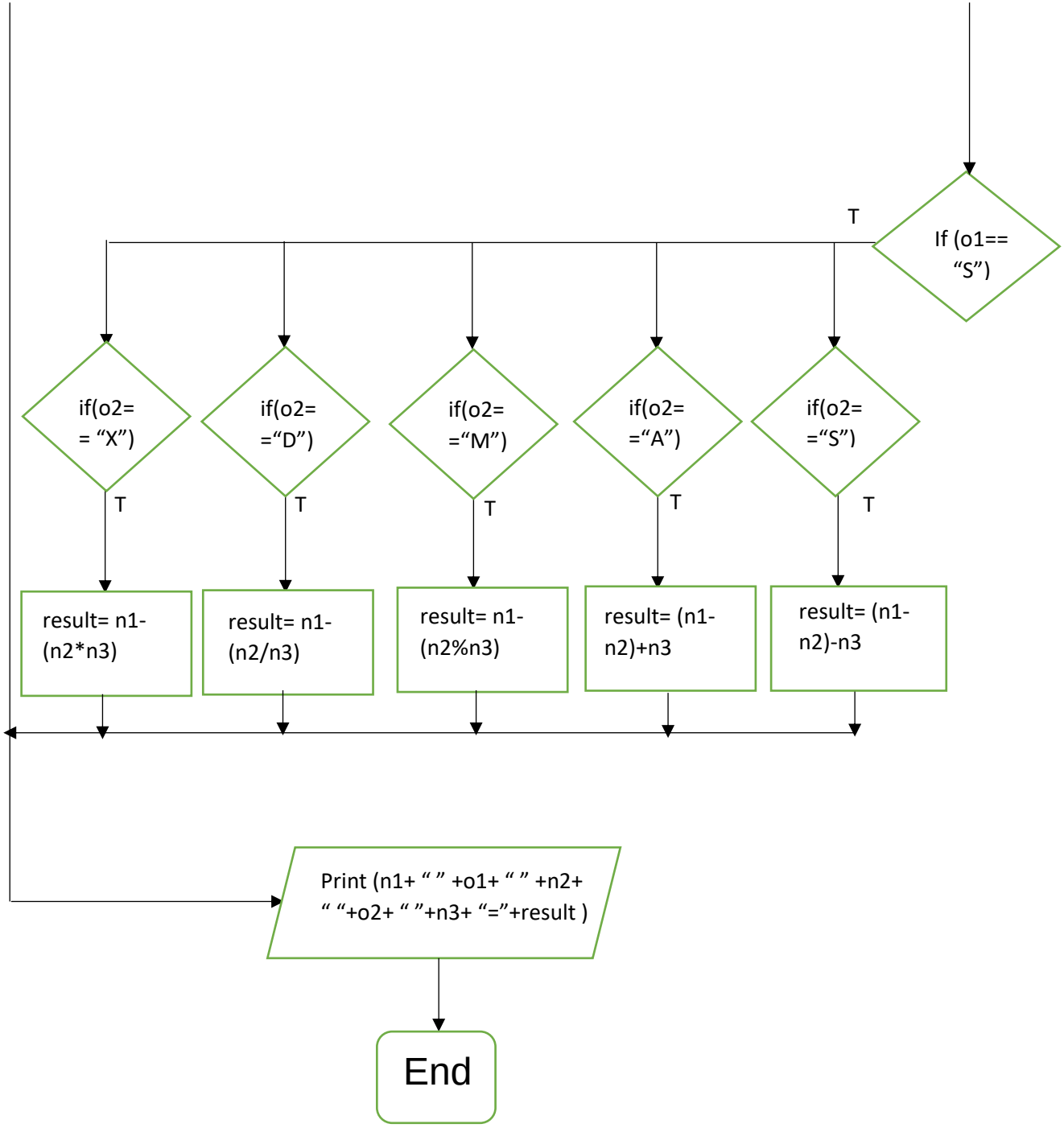
Process: Calculate and display result based on n1, n2, n3, o1, o2

Output: result

**Flowchart**




result= n1 / (n2*n3)
result= (n1/n2)/n3
result= (n1/n2)%n3
result= (n1/n2)+n3
result= (n1/n2)-n3
If (o1== "M")
T
F
if(o2= = "X")
if(o2= ="D")
if(o2== "M")
if(o2= ="A")
if(o2= ="S")
T
result= n1%(n2*n3)
result= n1%(n2/n3)
result= (n1%n2)%n3
result= (n1%n2)+n3
result= (n1%n2)-n3
If (o1== "A")
result= n1+(n2*n3)
result= n1+(n2/n3)
result= n1+(n2%n3)
result= (n1+n2)+n3
result= (n1+n2)-n3


If (o1== "S")
T
if(o2= = "X")
if(o2= ="D")
if(o2= ="M")
if(o2= ="A")
if(o2= ="S")
T
T
T
T
T
result= n1-(n2*n3)
result= n1-(n2/n3)
result= n1-(n2%n3)
result= (n1-n2)+n3
result= (n1-n2)-n3
Print (n1+ " " +o1+ " " +n2+ " "+o2+ " "+n3+ "="+result )
End

**Sample Input and Output**

```
Enter three integer numbers: 3 4 5
Enter two operands: A X
3 A 4 X 5 = 23.0
```

```
Enter three integer numbers: 20 34 56
Enter two operands: S D
20 S 34 D 56 = 20.0
```

```
Enter three integer numbers: 100 344 700
Enter two operands: D S
100 D 344 S 700 = -700.0
```

```
Enter three integer numbers: 10 30 40
Enter two operands: M M
10 M 30 M 40 = 10.0
```