

What is the algorithm in the following pseudo code used for?

```
1 DECLARE CHARACTER c
2 DECLARE INTEGER num = 0
3 DO
4 READ c
5 IF c IS '0' THROUGH '9' THEN
6 num++
7 END IF
8 UNTIL c IS '\n'
9 PRINT num
10 END
```

- Word count
- Character count
- To find new line character
- Counting digits

Clear Response

Consider the following pseudocode:

What would be the output of the pseudocode if the input to the program was 15?

```
1 START
2 Integer TotalNum, NumBoys, NumGirls, BoysPercent
3 SET BoysPercent=10
4 GET NumBoys
5 SET TotalNum = (NumBoys*100)/BoysPercent
6 SET NumGirls = (TotalNum*(100-BoysPercent-1))/100
7 Print 'Total number of pupils: ', TotalNum
8 Print 'Number of girls: ', NumGirls
9 STOP
```

- Total number of pupils: 115
Number of girls: 133
- Total number of pupils: 150
Number of girls: 134
- Total number of pupils: 125
Number of girls: 137
- Total number of pupils: 150
Number of girls: 135

Clear Response



4 / 45



130%



Your requirement is to find out the grades and specific amount of fees that need to be paid according to the grade they earned. It can be called anywhere multiple times. How will you do?

```
1 Implemented below set of pseudocode in
2 main program itself
3 Start
4 main()
5 Let marks = 94;
6 if marks >= 90 then
7 grade = 'A';
8 fees = 10000;
9 else if marks >= 80 and marks < 90 then
10 .....
11 else if .....
12 Stop
13 One needs to write this set of code wherever
14 required
```

```
1 Implemented below set of pseudocode
2 in a routine(function).
3 Start
```

```
9 else if marks >= 80 and marks < 90 then
10 .....
11 else if .....
12 Stop
13 One needs to write this set of code wherever
14 required
```

○ 1 Implemented below set of pseudocode
2 in a routine(function),
3 Start
4 def calculateGradeAndFees(int marks)
5 if marks >= 90 then
6 grade = 'A';
7 fees = 10000; +
8 //Similarly many def statements for other

Your program needs to assign designations to an employee according to their seniority level and the years of service they did in an organization. How will you implement that?

1 Let the age of employee = 50
2 Let years of service = 10
3 if (age of employee > 40) and years of service
4 > 5) {
5 BAND = 'A';
6 else if (age of employee > 40) {
7 BAND = 'B';
8

1 Let the age of employee = 50
2 Let years of service = 10
3 if (age of employee > 40 and years of service
4 > 5) {
5 BAND = 'A';
6 else if (age of employee > 40 and years of service
7 > 2) {
8 BAND = 'B';
9

1 Let the age of employee = 50



Your program needs to assign designations to an employee according to their seniority level and the years of service they did in an organization. How will you implement that?

- ```
1 Let the age of employee = 50
2 Let years of service = 10
3 if (age of employee > 40) and years of service
4 > 5) {
5 BAND = 'A';
6 else if (age of employee > 40) {
7 BAND = 'B'
8
```
- ```
1 Let the age of employee = 50
2 Let years of service = 10
3 if (age of employee > 40 and years of service
4 > 5) {
5 BAND = 'A';
6 else if (age of employee > 40 and years of service
7 > 2) {
8 BAND = 'B'
9 .....
```
- ```
1 Let the age of employee = 50
```



Your program needs to assign designations to an employee according to their seniority level and the years of service they did in an organization. How will you implement that?

○ 1 Let the age of employee = 50  
2 Let years of service = 10  
3 if (age of employee > 40) and years of service  
4 > 5) {  
5 BAND = 'A';  
6 else if (age of employee > 40) {  
7 BAND = "B"  
8 .....

● 1 Let the age of employee = 50  
2 Let years of service = 10  
3 if (age of employee > 40 and years of service  
4 > 5) {  
5 BAND = 'A';  
6 else if (age of employee > 40 and years of service  
7 > 2) {  
8 BAND = "B"  
9 .....

○ 1 Let the age of employee = 50



You are asked to write arithmetic routines and put everything in a single routine. Write sample snippet code for that



```
1 //A calculator routine containing arithmetic
2 //routines like +, - etc
3 def calculatorOperation(int num1, int num2,
4 char operation) {
5 switch(operation) {
6 case '+' : result = num1 + num2;
7 break;
8 case '-' : result = num1 - num2;
9 break;
10 //Rest of the operations
11 }
12 print('Result = ' + result)
13 }
14 //If user wants to perform addition, then
15 call calculatorOperation(10000, 5000, +)
16 //must be passed and hence output will be
17 15000
```

```
1 //A calculator routine containing arithmetic
2 //routines like +, - etc
```



You are asked to write arithmetic routines and put everything in a single routine. Write sample snippet code for that

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2 //routines like +, - etc
3 def calculatorOperation(int num1, int num2,
4 char operation) {
5 switch(operation) {
6 case '+': result = num1 + num2;
7 break;
8 case '-': result = num1 - num2;
9 break;
10 //Rest of the operations
11 }
12 print("Result = " + result)
13 }
14 //If user wants to perform addition, then
15 call calculatorOperation(10000, 5000, '+')
16 //must be passed and hence output will be
17 15000
```

```
1 //A calculator routine containing arithmetic
2 //routines like +, - etc
```

Which of the following options indicate the correct pseudocode that can be used to find if a given number is positive or negative using a logical operator?

```
10 Print 'The number is a positive number'
11 END IF
12 END IF
13 STOP
```

1 START  
2 GET Num  
3 IF (Num>0) THEN  
4 Print 'The number is a positive number'  
5 ELSE  
6 Print 'The number is a negative number'  
7 END IF  
8 STOP

1 START  
2 Integer Num  
3 GET Num  
4 IF (Num==0) THEN  
5 Print 'The number is neither positive nor negative'  
6 ELSE

Which of the following options indicate the correct pseudocode that can be used to find if a given number is positive or negative using a logical operator?

```
10 Print 'The number is a positive number'
11 END IF
12 END IF
13 STOP
```

```
1 START
2 GET Num
3 IF (Num>0) THEN
4 Print 'The number is a positive number'
5 ELSE
6 Print 'The number is a negative number'
7 END IF
8 STOP
```

```
1 START
2 Integer Num
3 GET Num
4 IF (Num==0) THEN
5 Print 'The number is neither positive nor negative'
6 ELSE
```

Consider the following pseudocode:

What would be the output when the given pseudocode is executed?

```
1 FUNCTION CalculateSimpleInterest(Integer P, Integer N, Integer R)
2 Integer SI
3 SET SI = (P*N*R)/100
4 Print 'Simple interest is: ', SI
5 END FUNCTION
6
7 PROGRAM START
8 CALL CalculateSimpleInterest(1000, 2, 5)
9 STOP
```

Simple Interest is: 100

Simple Interest is: 500

Simple Interest is: 1000

Simple Interest is: 50

Clear Response



Consider the following pseudocode:

What would be the output when the given pseudocode is executed?

```
1 FUNCTION CalculateSimpleInterest(Integer P, Integer N, Integer R)
2 Integer SI
3 SET SI = (P*N*R)/100
4 Print 'Simple interest is: ', SI
5 END FUNCTION
6
7 PROGRAM START
8 CALL CalculateSimpleInterest(1000, 2, 5)
9 STOP
```

Simple Interest is: 100

Simple Interest is: 500

Simple Interest is: 1000

Simple Interest is: 50

Clear Response



Consider the following pseudocode

What will be the output of this pseudocode if it is executed?

```
1 FUNCTION PayEmp(Integer workHrs, Integer sales) RETURNS Integer
2 Integer Pay, PayPerHr, SalesPay
3 SET PayPerHr = 5
4 IF sales < 10000 THEN
5 SET SalesPay = 150
6 ELSE IF sales < 50000 THEN
7 SET SalesPay = 750
8 ELSE
9 SET SalesPay = ((150*100)/10000) + 0.5 * sales / 100
10 END IF
11 SET Pay = PayPerHr * workHrs + SalesPay
12 RETURN Pay
13 END FUNCTION
14
```

- You have to pay: Rs. 4500
- You have to pay: Rs. 6100
- You have to pay: Rs. 1000
- You have to pay: Rs. 1300

Clear Response

```
1 Integer Pay, PayEmp
2
3 SET PayPerHr = 5
4 IF sales < 10000 THEN
5 SET SalesPay = 150
6 ELSE IF sales < 50000 THEN
7 SET SalesPay = 750
8 ELSE
9 SET SalesPay = ((150*100)/10000)+0.5)*sales/100
10 END IF
11 SET Pay = PayPerHr * workHrs + SalesPay
12 RETURN Pay
13 END FUNCTION
14
15 PROGRAM START
16 Integer Pay
17 SET Pay = CALL PayEmp(20, 60000)
18 Print "You have to pay: Rs. ", Pay
19 STOP
```

Clear Response



```

1 FUNCTION PayEmp(Integer workHrs, Integer sales) RETURNS Integer
2 Integer Pay, PayPerHr, SalesPay
3 SET PayPerHr = 5
4 IF sales < 10000 THEN
5 SET SalesPay = 150
6 ELSE IF sales < 50000 THEN
7 SET SalesPay = 750
8 ELSE
9 SET SalesPay = ((150 * 100) / 10000) + 0.5 * sales / 100
10 END IF
11 SET Pay = PayPerHr * workHrs + SalesPay
12 RETURN Pay
13 END FUNCTION
14
15 PROGRAM START
16 Integer Pay
17 SET Pay = CALL PayEmp(20, 60000)

```

You have to pay: Rs. 1000  
 You have to pay: Rs. 1300  
 Clear Response

Handwritten calculations and annotations:

- A checkmark is placed above line 9.
- Line 11 is underlined.
- Line 12 is underlined.
- Line 17 is underlined.
- Handwritten calculation:  $5 \times 20 + 1200 = 100 + 1200 = 1300$ . The result 1300 is circled.
- Handwritten calculation:  $150 + 20 \times 60 = 150 + 1200 = 1350$ . The result 1350 is circled.
- Handwritten calculation:  $150 + 20 \times 60 = 1300$ . The result 1300 is circled.



What will be the output of the following code if n=4?

```
1 FUNCTION doMath(integer n)
2 BEGIN IF n <= 1
3 return n
4 ELSE
5 return n * doMath(n-1);
```

16

12

24

64

Clear Response



What will be the output of the following code if  $n=4$ ?

```
1 FUNCTION doMath(integer n)
2 BEGIN IF n <= 1
3 return n
4 ELSE
5 return n * doMath(n-1);
```

4 \* 3 \* 2 \* 1 = 24

16

12

24

64

Clear Response

Consider a program that calculates the factorial of a given number. The program takes the number as input from the user and uses a recursive function to calculate the factorial. Which of the following options indicate the correct pseudocode to implement the given program?

1 FUNCTION CalculateFactorial(Integer Num) RETURNS Integer  
2 IF (Num<2) THEN  
3 RETURN 1  
4 ELSE  
5 RETURN Num + CALL CalculateFactorial(Num-1)  
6 END IF  
7 END FUNCTION  
8  
9 PROGRAM START  
10 Integer Num, Factorial  
11 GET Num  
12 SET Factorial = CALL CalculateFactorial(Num)  
13 Print 'The factorial for number ', Num, ' is ', Factorial  
14 STOP

1 FUNCTION CalculateFactorial(Num)  
2 IF (Num<=1) THEN  
3 RETURN 1  
4 ELSE  
5 RETURN Num + CALL CalculateFactorial(Num-1)

Consider a program that calculates the factorial of a given number. The program takes the number as input from the user and uses a recursive function to calculate the factorial. Which of the following options indicate the correct pseudocode to implement the given program?

1 FUNCTION CalculateFactorial(Integer Num) RETURNS Integer  
2 IF (Num<2) THEN  
3 RETURN 1  
4 ELSE  
5 RETURN Num \* CALL CalculateFactorial(Num-1)  
6 END IF  
7 END FUNCTION  
8  
9 PROGRAM START  
10 Integer Num,Factorial  
11 GET Num  
12 SET Factorial = CALL CalculateFactorial(Num)  
13 Print 'The factorial for number ',Num, ' is ',Factorial  
14 STOP

1 FUNCTION CalculateFactorial(Num)  
2 IF (Num<=1) THEN  
3 RETURN 1  
4 ELSE  
5 RETURN Num \* CALL CalculateFactorial(Num-1)

### Question # 11

Revisit

Consider a program that prints fibonacci series. The program takes the number of elements in the series as input from the user. Which of the following pseudocodes will print the series as required?

```
18 Integer NumTerms
19 GET NumTerms
20 CALL PrintFibonacci(NumTerms)
21 STOP
```

- ```
1 FUNCTION PrintFibonacci(Integer NumTerms)
2 Integer Term1, Term2, NextTerm
3 SET Term1=0
4 SET Term2=1
5 SET NextTerm = Term1+Term2
6 FOR Term=Term1 TO NumTerms STEP 1 DO
7 Print NextTerm
8 Term1=Term2
9 Term2=NextTerm
10 NextTerm = Term1+Term2
11 END FOR
12 END FUNCTION
13
```

series as input from the user. Which of the following pseudocodes will print the series as required?

```
21 STOP  
1 FUNCTION PrintFibonacci(Integer NumTerms)  
2 Integer Term1, Term2, NextTerm  
3 SET Term1=0  
4 SET Term2=1  
5 SET NextTerm = Term1+Term2  
6 FOR Term=Term1 TO NumTerms STEP 1 DO  
7 Print NextTerm  
8 Term1=Term2  
9 Term2=NextTerm  
10 NextTerm = Term1+Term2  
11 END FOR  
12 END FUNCTION  
13  
14 PROGRAM START  
15 Integer NumTerms  
16 GET NumTerms  
17 CALL PrintFibonacci(NumTerms)  
18 STOP
```

How many times the function will be called recursively for input $x=10$ & $y=7$ in the given pseudocode?

```
1 Function (input x, input y)
2   If  $x < y$  Then
3     return function(y, x)
4   Else If  $y \neq 0$  Then
5     integer z = function(x, y-1)
6     z = z+x
7     return z
8
9   Else
10    return 0
11  End If
12 End Function
```

6

7

8

10

Clear Response



How many times the function will be called recursively for input $x=10$ & $y=7$ in the given pseudocode?

```
1 Function (input x, input y)
2   If  $x < y$  Then
3     return function(y, x)
4   Else If  $y \neq 0$  Then
5     integer z = function(x, y-1)
6      $z = z+x$ 
7     return z
8
9   Else
10    return 0
11  End If
12 End Function
```

6

7

8

10

Clear Response



What should be the output of the code if user input N as 10?

```
1 READ N
2 SET a = 0
3 SET b = 1
4 SET c = 1
5 REPEAT
6 b = b * c
7 a = a + (b / c)
8 c = c + 1
9 UNTIL c < N
10 Print a
```

46234

362880

10

55

Clear Response

What should be the output of the code if user input N as 10?

```
1 READ N
2 SET a = 0
3 SET b = 1
4 SET c = 1
5 REPEAT
6 b = b * c
7 a = a + (b / c)
8 c = c + 1
9 UNTIL c < N
10 Print a
```

46234

362880

10

55

Clear Response

How many times the function will be called recursively for input $x=10$ & $y=7$ in the given pseudocode?

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1 Function (input x, input y)
2   If  $x < y$  Then
3     return function(y, x)
4   Else If  $y \neq 0$  Then
5     integer z = function(x, y-1)
6     z = z+x
7     return z
8
9   Else
10    return 0
11  End If
12 End Function
```

6

7

8

10

Clear Response

What should be the output of the code if user input N as 10?

```
1 READ N
2 SET a = 0
3 SET b = 1
4 SET c = 1
5 REPEAT
6 b = b * c
7 a = a + (b / c)
8 c = c + 1
9 UNTIL c < N
10 Print a
```

46234

362880

10

55

Clear Response



From Dhanajayan Ravi to
Everyone

for this only I said 8 times sir

How many times the while loop will be executed for $N = 8$?

```
1 SET even = total = 0;  
2 READ N  
3 WHILE even <= N  
4 total = total + even;  
5 even = even + 2;  
6 ENDWHILE  
7 PRINT total
```

4

8

5

9

Clear Response

How many times the while loop will be executed for $N = 8$?

- 1 SET even = total = 0;
- 2 READ N
- 3 WHILE even \leq N ✓
- 4 total = total + even; ✎
- 5 even = even + 2;
- 6 ENDWHILE
- 7 PRINT total

0 \leftarrow 8
2 \leftarrow 8

4

8

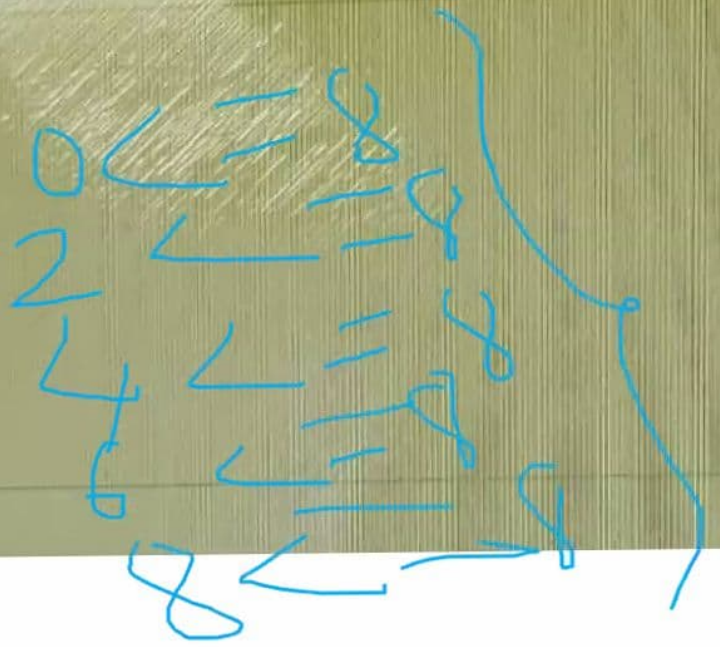
5

9

Clear Response

How many times the while loop will be executed for $N = 8$?

```
1 SET even = total = 0;  
2 READ N  
3 WHILE even <= N  
4 total = total + even;  
5 even = even + 2;  
6 ENDWHILE  
7 PRINT total
```



- 4
- 8
- 5
- 9

Clear Response

What will be the complexity for the below pseudocode?

```
1 SET t = 0
2 READ Array A[0...9]
3 FOR each element e in A
4 t = t + e
5 ENDFOR
6 PRINT t
```

Order of 10

Order of 1

Order of 100

Order of 2

[Clear Response](#)

What will be the size of the Queue after execution of the following code with N=10?

```
1 while (Starting from i=1 execute N times with increment of 1){  
2   push i to the queue  
3   if(i is multiple of 2){  
4     peek it from the queue  
5   }  
6   if (i is multiple of 3){  
7     poll it from the queue  
8   }  
9 }
```

- 3
- 2
- 7
- 5

Clear Response

What will be the size of the Queue after execution of the following code with N=10?

```
1 while (Starting from i=1 execute N times with increment of 1){  
2   push i to the queue  
3   if(i is multiple of 2){  
4     peek it from the queue  
5   }  
6   if (i is multiple of 3){  
7     poll it from the queue  
8   }  
9 }
```

- 3
- 2
- 7
- 5

Clear Response

Question # 17

Provide a sample snippet of Pseudocode for "Stack" operation i.e. LIFO principle. You are taking ten items and display them in LIFO principle i.e. Last in First Out Principle.

Revisit

```
2 //Get names one by one and add in loop
3 nameCount = 10;
4 for (int i = 0; i < nameCount;i++) {
5 //Get name and add in nameList
6 }
```

```
1 ArrayList nameList = new ArrayList();
2 //Get names one by one and add in loop
3 nameCount = 10;
4 for (int i = 0; i < nameCount;i++) {
5 //Get name and add in nameList
6 }
7 //Display in LIFO order
8 for (int i = nameList.length(); i > 0;i--) {
9 System.out.println(nameList.get(i).toString())
10 }
```

```
1 ArrayList nameList = new ArrayList();
2 //Get names one by one and add in loop
3 nameCount = 10;
4 for (int i = 0; i < nameCount;i-- ) {
5 //Get name and add in nameList
```

Question # 17

Provide a sample snippet of Pseudocode for "Stack" operation, i.e. LIFO principle. You are taking ten items and display them in LIFO principle. i.e. Last in First Out Principle.

Revisit

```
2 //Get names one by one and add in loop
3 nameCount = 10;
4 for (int i = 0; i < nameCount;i++) {
5 //Get name and add in nameList
6 }
```

```
1 ArrayList nameList = new ArrayList();
2 //Get names one by one and add in loop
3 nameCount = 10;
4 for (int i = 0; i < nameCount;i++) {
5 //Get name and add in nameList
6 }
7 //Display in LIFO order
8 for (int i = nameList.length(); i > 0;i--) {
9 System.out.println(nameList.get(i).toString())
10 }
```

```
1 ArrayList nameList = new ArrayList();
2 //Get names one by one and add in loop
3 nameCount = 10;
4 for (int i = 0; i < nameCount;i--) {
5 //Get name and add in nameList
```

Which of the following is the pseudocode for taking three numbers as input and printing the biggest number?

```
10 End If
11 Else
12 Print x
13 End If
```

```
1 READ x
2 READ y
3 READ z
4
5 If x > y Then
6 If x > z Then
7 Print x
8 Else
9 Print z
10 End If
11 Else
12 Print y
13 End If
```

```
1 READ x
2 READ y
```

Which of the following is the pseudo code for taking three numbers as input and printing the biggest number?

```
10 End If  
11 Else  
12 Print x  
13 End If
```

```
1 READ x  
2 READ y  
3 READ z  
4  
5 If x > y Then  
6 If x > z Then  
7 Print x  
8 Else  
9 Print z  
10 End If  
11 Else  
12 Print y  
13 End If
```

```
1 READ x  
2 READ y
```

QUESTION 8-3

Consider a program that takes three numbers as input and then prints the greatest of the three numbers. Which of the following pseudocodes will give the correct answer?

```
1 START
2 Integer A, B, C, Largest
3 Get A, B, C
4 IF (A>B) AND (A>C) THEN
5 SET Largest = A
6 ELSE
7 IF (B>A) AND (B>C) THEN
8 SET Largest = B
9 ELSE
10 SET Largest = C
11 END IF
12 END IF
13 Print 'The largest number is ', Largest
14 STOP
```

```
1 START
2 Get A, B, C
3 IF (A>B) OR (A>C) THEN
4 SET Largest = A
5 ELSE
```

QUESTION 8-3

Consider a program that takes three numbers as input and then prints the greatest of the three numbers. Which of the following pseudocodes will give the correct answer?

```
1 START
2 Integer A, B, C, Largest
3 Get A, B, C
4 IF (A>B) AND (A>C) THEN
5 SET Largest = A
6 ELSE
7 IF (B>A) AND (B>C) THEN
8 SET Largest = B
9 ELSE
10 SET Largest = C
11 END IF
12 END IF
13 Print 'The largest number is ', Largest
14 STOP
```

```
1 START
2 Get A, B, C
3 IF (A>B) OR (A>C) THEN
4 SET Largest = A
5 ELSE
```


Consider a program that takes three numbers as input and then prints the greatest of the three numbers. Which of the following pseudocodes will give the correct answer?

```
1 START
2 Integer A, B, C, Largest
3 Get A, B, C
4 IF (A>B) AND (A>C) THEN
5 SET Largest = A
6 ELSE
7 IF (B>A) AND (B>C) THEN
8 SET Largest = B
9 ELSE
10 SET Largest = C
11 END IF
12 END IF
13 Print 'The largest number is ', Largest
14 STOP
```

```
1 START
2 Get A, B, C
3 IF (A>B) OR (A>C) THEN
4 SET Largest = A
5 ELSE
```

Question # 10

Revisit

Choose the best option

Consider the given codes and choose the option that is associated with these codes.

Code 1:

```
function average_mark( set_of_marks )
```

```
end function
```

Code 2:

```
halfterm_marks = [53.60.80]
```

```
print "The average is"
print average_mark( halfterm_mark )
```

- Formal Parameter - set_of_marks
Actual Parameter - halfterm_mark
- Formal Parameter - halfterm_mark
Actual Parameter - set_of_marks
- Formal Parameter - average_marks
Actual Parameter - halfterm_marks
- Formal Parameter - halfterm_marks
Actual Parameter - average_marks

Clear Response

Question # 10

Revisit

Choose the best option

Consider the given codes and choose the option that is associated with these codes.

Code 1:

```
function average_mark( set_of_marks )
    ...
end function
```

Code 2:

```
halfterm_marks = [53.60.80]

print "The average is:"
print average_mark( halfterm_mark )
```

- Formal Parameter - set_of_marks
Actual Parameter - halfterm_mark
- Formal Parameter - halfterm_mark
Actual Parameter - set_of_marks
- Formal Parameter - average_marks
Actual Parameter - halfterm_marks
- Formal Parameter - halfterm_marks
Actual Parameter - average_marks

Clear Response