

Question 1:

Write a program which gets one input n (integer). As long as n is negative or equal to 0, keep requesting for a new input. When n is positive, have the program calculate the product of all odd numbers greater than or equal to 1 and less than or equal to n.

Examples :

n = 1, the program output : "Product = 1"

n = 6, the program output : "Product = 15" // the product to calculate is : $1 * 3 * 5$

n = 7, the program output : "Product = 105" // the product to calculate is : $1 * 3 * 5 * 7$

Your solution must use a for loop to calculate the product of odd numbers.

Answer:

```
#include <stdio.h>
#include <iostream>
#include <cmath>
using namespace std;
int main()
{

    int n;
    int fact=1;
    int number;

    cout<< "Enter the value of number";
    cin>> number;

    while (number<=0){cout<<"please enter a positive value ";
    cin>> number; }
    for(n=1; n<=number; n+=2){fact=fact*n;}
    cout<< "The product of odd numbers is: "<<fact<<endl;

    return 0;
}
```

Question 2:

Write a program which gets two inputs n and m (integers). Assume that the user will always provide positive values such that $1 < n < m$.

Calculate the sum of all integers

- greater than 1
- and less than or equal to m
- and divisible by n

Your solution must use a while loop to calculate the sum.

Examples :

n = 2, m = 10, the program output is : "Sum = 30" // the sum to calculate is : $2 + 4 + 6 + 8 + 10$

n = 3, m = 10, the program output is : "Sum = 18" // the sum to calculate is : $3 + 6 + 9$

n = 5, m = 10, the program output is : "Sum = 15" // the sum to calculate is : $5 + 10$

Answer:

```
#include <stdio.h>
```

```
#include <iostream>
```

```
#include <cmath>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
int n;
```

```
int m;
```

```
int s;
```

```
int i=0;
```

```
cout<<"enter value of n";
```

```
cin>> n;
```

```
cout<<"enter value of m";
```

```
cin>> m;
```

```
while (i<=m){  
    s = s + i;  
    i = i+n;  
}
```

```
cout<<s;  
return 0;  
}
```

Question 3:

Write a program which gets one input n (integer). Assume that the user will always provide a value greater than or equal to 10. Have your program output all the pairs (i,j) of integers, such that

- i is less than or equal to j ,
- and the product $i*j$ is equal to n .

Examples :

$n = 20$, the program output should be : “(1,20), (2,10), (4,5),”

$n = 25$, the program output should be : “(1,25), (5,5),”

$n = 30$, the program output should be : “(1,30), (2,15), (3,10), (5,6),”

Your solution must use a `do{ ... } while ()` loop.

Answer:

```
#include <stdio.h>
```

```
#include <iostream>
```

```
#include <cmath>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
int n;
```

```
int i;
```

```
n=0;
```

```
i=1;
```

```
cout<<"enter a number: ";
```

```
cin>> n;
```

```
do { if (n % i == 0){
```

```
    cout <<"("<<i<<" "<<n/i <<"");}
```

```
    i++;}
```

```
while(i<=n/i);}
```