**For/while loops**

1. Write a program in C++ to display n terms of natural number and their sum.

#include <iostream>

#include <climits> // integer limits in header file

using namespace std;

int main()

{

int n,sum=0;

cout<<"Enter how many terms:";

cin>>n;

for (int i=1;i<=n;i++)

{

cout<<i<<endl;

sum+=i;

}

cout<<"The sum is:"<<sum;

return 0;

}

**Enter how many terms:**10

**1**

**2**

**3**

**4**

**5**

**6**

**7**

**8**

**9**

**10**

**The sum is:55Program ended with exit code: 0**

1. WAP to print the first even numbers till n.

#include <iostream>

#include <climits> // integer limits in header file

using namespace std;

int main()

{

int n,sum=0;

cout<<"Enter how many terms:";

cin>>n;

for (int i=2;i<=n;i=i+2)

{

cout<<i<<endl;

sum+=i;

}

cout<<"The sum is:"<<sum;

return 0;

}

OR

#include <iostream>

#include <climits> // integer limits in header file

using namespace std;

int main()

{

int n,i=1;

cout<<"Enter till which no:";

cin>>n;

for (i=1;i<=n;i++)

{

if (i%2==0)

cout<<i<<endl;

}

return 0;

}

**Enter till which no:**10

**2**

**4**

**6**

**8**

**10**

**Program ended with exit code: 0**

1. WAP to print the first n even numbers.

#include <iostream>

#include <climits> // integer limits in header file

using namespace std;

int main()

{

int n,i=1;

cout<<"Enter how many terms:";

cin>>n;

int num=1;

while (i<=n)

{

if (num%2==0)

{

cout<<num<<endl;

i++;

}

num++;

}

return 0;

}

**Enter how many terms:**5

**2**

**4**

**6**

**8**

**10**

**Program ended with exit code: 0**

1. WAP to check if a number is prime or not.

#include <iostream>

//Check if num is prime or not

using namespace std;

int main()

{

int num,temp=1,i;

cout<<"Enter number:";

cin>>num;

for (i=2;i<num;i++)

{

if (num%i==0)

{

temp=0;

break;

}

}

if (temp==0)

cout<<num<<" is not prime.\n";

else

cout<<num<<" is prime.\n";

return 0;

}

**Enter number:**23

**23 is prime.**

**Program ended with exit code: 0**

1. Write a program in C++ to find prime number within a range.

#include <iostream>

//Check if num is prime or not

using namespace std;

int main()

{

int num,temp,n1,n2,i;

cout<<"starting range";

cin>>n1;

cout<<"ending range";

cin>>n2;

for (i=n1;i<=n2;i++)

{

temp=1;

for(int j=2;j<i;j++)

{

if(i%j==0)

{

temp=0;

break;

}

}

if (temp==1)

cout<<i<<endl;

else

continue;

}

return 0;

}

**starting range**2

**ending range**25

**2**

**3**

**5**

**7**

**11**

**13**

**17**

**19**

**23**

**Program ended with exit code: 0**

1. Write a program in C++ to find the last prime number occur before the entered number.

#include <iostream>

//Last prime number

using namespace std;

int main()

{

int num,temp,n,i;

cout<<"number:";

cin>>n;

for (i=1;i<n;i++)

{

temp=1;

for(int j=2;j<i;j++)

{

if(i%j==0)

{

temp=0;

break;

}

}

if (temp==1)

num=i;

else

continue;

}

cout<<num<<endl;

return 0;

}

This is more rigorous and uses more memory, so here is a better way of doing it:

#include <iostream>

//Last prime number

using namespace std;

int main()

{

int num,temp,n,i;

cout<<"number:";

cin>>n;

i=n-1;

while (i<n)

{

temp=1;

for(int j=2;j<i;j++)

{

if(i%j==0)

{

temp=0;

break;

}

}

if (temp==1){

num=i;

break;

}

i--;

}

cout<<num<<endl;

return 0;

}

**number:**22

**19**

**Program ended with exit code: 0**

1. WAP to find factorial of a number.

#include <iostream>

using namespace std;

int main()

{

int num1,factorial=1;

cout << " Input a number: ";

cin>> num1;

for(int a=1;a<=num1;a++)

{

factorial=factorial\*a;

}

cout<<" The factorial of the given number is: "<<factorial<<endl;

return 0;

}

1. Write a program in C++ to find the Greatest Common Divisor (GCD) of two numbers.

#include <iostream>

//gcd

using namespace std;

int main()

{

int a, b, small, gcd=1;

cin >> a >> b;

if (a < b)

small = a;

else

small = b;

for (int i = 2; i <= small; i++)

{

if ((a%i == 0) && (b%i == 0))

gcd = i;

}

if (gcd != 1)

{

cout << gcd << endl;

}

else

{

cout << "gcd does'nt exist" << endl;

}

return 0;

}

8 9

gcd does'nt exist

Press any key to continue . . .

35 150

5

Press any key to continue . . .