**1)If a five-digit number is input through the keyboard, write a program to calculate the sum of its digits. (Hint: Use the modulus operator '%') using cpp language.**

#include<iostream>

using namespace std;

int main()

{

    int num,a,b,c,d,e,d1,d2,d3,d4,d5,sum;

        cout<<"Enter the five digits num: ";

    cin>>num;

    a=num/10;

    d1=num%10;

    b=a/10;

    d2=a%10;

    c=b/10;

    d3=b%10;

    d=c/10;

    d4=c%10;

    e=d/10;

    d5=d%10;

    sum=d1+d2+d3+d4+d5;

    cout<<"Five digits of sum: "<<sum;

    return 0;

}

# 2)If a five-digit number is input through the keyboard, write a program to reverse the number.

#include <bits/stdc++.h>

using namespace std;

int main() {

  int num, reversed = 0, n;

  cout << "Enter an integer: ";

  cin >> num;

  while(num != 0) {

    n = num % 10;

    reversed = reversed \* 10 + n;

    num /= 10;

  }

  cout << "Reversed Number: " << reversed;

  return 0;

}

# 3)If lengths of three sides of a triangle are input through the keyboard, write a program to find the area of the triangle.

#include<bits/stdc++.h>

using namespace std;

    int main()

    {

        float side1, side2, side3, area, s;

        cout<<" Input the length of 1st side  of the triangle : ";

        cin>>side1;

        cout<<" Input the length of 2nd side  of the triangle : ";

        cin>>side2;

        cout<<" Input the length of 3rd side  of the triangle : ";

        cin>>side3;

        s = (side1+side2+side3)/2;

        area = sqrt(s\*(s-side1)\*(s-side2)\*(s-side3));

        cout<<" The area of the triangle is : "<< area;

        return 0;

    }

# 4)Write a program to receive Cartesian co-ordinates (x,y) of a point and convert them into polar co-ordinates(r,Φ).

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int x, y, degree;

    float r, phi, pi;

    cout <<"Enter the co-ordinate points (x, y): ";

    cin>> x >> y;

    r = sqrt(x\*x + y\*y);

    phi = atan(y/x);

  cout <<"\n The polar co-ordinates is: " << x << y << r <<phi;

    pi = 3.141592;

    degree = phi \* (180/pi);

  cout <<"\n The polar co-ordinates in Degree: "<< r <<degree;

    return 0;

}

# 5)Write a program to receive values of latitude and longitude, in degrees, of two places on the earth and outputs the distance between then in nautical miles. The formula for distance in nautical miles is here.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    float L1, L2, G1, G2, D;

    const float PI = 3.141592;

  cout << "Enter latitude(L1, L2): ";

   cin >> L1 >> L2;

   cout << "Enter longitude(G1, G2): " ;

   cin >> G1 >> G2;

    L1 = L1 \* (PI / 180.0);

    L2 = L2 \* (PI / 180.0);

    G1 = G1 \* (PI / 180.0);

    G2 = G2 \* (PI / 180.0);

    D = 3963 \* acos(sin(L1) \* sin(L2) + cos(L1) \* cos(L2) \* cos(G2 - G1));

    cout << "Distance in nautical miles is: " << D;

    return 0;

}

# 6)Wind chill factor is the felt air temperature on exposed skin due to wind. The wind chill temperature is always lower than the air temperature, and is calculated as per the following formula: Write a program to receive values of temperature and wind velocity and calculate wind chill factor.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    float temp, wind, wcf;

    cout << "Enter air temperature in Fahrenheit: ";

    cin >> temp;

    cout << "Enter the wind speed in mph: ";

    cin >> wind;

    wcf = 35.74 + 0.6215\*temp + (0.4275\*temp - 35.75) \* pow(wind,0.16);

    cout << "Wind Chill Factor in Fahrenheit: " << wcf;

    return 0;

}

# 7)If value of an angle is input through the keyboard, write a c program to print all its Trigonometric Ratios.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    float degree, radian;

    float pi = 3.14159;

    cout << "Enter angle in degree: ";

    cin  >> degree;

    radian = degree \* (pi/180);

    cout << "\n cos(radians): " << cos(radian);

    cout << "\n sin(radians): " << sin(radian);

    cout << "\n tan(radians): " << tan(radian);

    cout << "\n cosec(radians): " <<(1/sin(radian));

    cout << "\n sec(radians): " << (1/cos(radian));

    cout << "\n cot(radians): " << (1/tan(radian));

    return 0;

}

# 8)Consider a currency system in which there are notes of seven denominations, namely, Rs. 1, Rs. 2, Rs. 5, Rs. 10, Rs. 50, Rs. 100. If a sum of Rs. N is entered through the keyboard, write a program to computer the smallest number of notes that will combine to given Rs. N.

#include<bits/stdc++.h>

using namespace std;

int main()

{

    int rs=0, one=0, two=0, five=0, ten=0, fifty=0, hundred=0;

    cout<< "Enter the sum of rupees: ";

    cin >> rs;

    if(rs>=100)

    {

        hundred = rs/100;

        rs = rs%100;

    }

    if(rs>=50)

    {

        fifty = rs/50;

        rs = rs%50;

    }

    if(rs>=10)

    {

        ten = rs/10;

        rs = rs%10;

    }

    if(rs>=5)

    {

        five = rs/5;

        rs = rs%5;

    }

    if(rs>=2)

    {

        two = rs/2;

        rs = rs%2;

    }

    if(rs>=1)

    {

        one = rs;

    }

    cout << "Rs 100:  "<< hundred ;

    cout<< "\n Rs 50: "<< fifty;

    cout<< "\n Rs 10: "<< ten;

    cout<< "\n Rs 5: "<< five;

    cout<< "\n Rs 2: "<< two;

    cout<< "\n Rs 1: "<< one;

    return 0;

}