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// Assignment#1 Home Task

#include <cmath>

#include <iostream>

using namespace std;

// Task 1: Calculating Factorial of 6

int main()

{

int a,f; //defined two variables "a" and "f"

a=6; // variable "a" is set to 6

f=a\*(a-1)\*(a-2)\*(a-3)\*(a-4)\*(a-5); // the factorial is now calculated as 6\*5\*4\*3\*2\*1 and the value is stored in variable "f"

cout<<"The Factorial of 6 is " <<f; // cout is used to print the answer on the output terminal

return 0;

}

// Task 2: Calculatng distance between two points

int main()

{

float c; //defined 5 variables, 4 for each coordinate and one for calculation"c"

int x1,y1,x2,y2;

cout<<"Enter the value of x coordinate of first point (x1): "<<endl; // asked user to input coordinate value

cin>>x1; // assigned each coordinate the inputted value

cout<<"Enter the value of y coordinate of first point (y1): "<<endl;

cin>>y1;

cout<<"Enter the value of x coordinate of second point (x2): "<<endl;

cin>>x2;

cout<<"Enter the value of y coordinate of second point (y2): "<<endl;

cin>>y2;

c = (((x2-x1)\*(x2-x1)+(y2-y1)\*(y2-y1))); // Calculated the square of the distance using the formula for distance between 2 points

cout<<"Distance between the two points is " <<sqrt(c); // cout to output the distance by taking square root of c

return 0;

}

// Task 3: Coverting to meter and kilometer

int main()

{

float cm,m,km; // defined three variables, each for length in cm, m and km

cout<<"Enter the length in centimeters "; // Asked user to input length in cm using cout

cin>>cm; // used cin object to allow user to input value and assigned that value to cm variable

m=cm/100; //Calculated length in metres by dividing cm value by 100 and assigned that value to m variable

km=m/1000; // Calculated length in kilometres by dividing m value by 1000 and assigned that value to km variable

cout<<"Length in meters: " <<m<< " m "<<endl; //output the value in m variable using cout object

cout<<"Length in kilometers: " <<km<< " km "<<endl; //output the value in km variable using cout object

return 0;

}

//Task 4: Polynomial in form a^2 + 2ab + b^2

int main()

{

float a,b; // defined two variables a and b of float type so that any value can be inserted

cout<<"Enter value of a: "; // cout to ask user to input values of a and b

cin>>a; //allowed user to input values and assigned user inserted values to a and b using cin

cout<<"Enter value of b: ";

cin>>b;

cout<<" " <<a\*a<< " + " <<2\*a\*b<< " + " <<b\*b<< " = "<<(a\*a)+(2\*a\*b)+(b\*b) ; // Output: a^2 + 2ab + b^2

return 0;

}