

Computer science and programming

**Assignment 1**



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**Task 1**

#include <iostream>

using namespace std;

int factorial(int n) {

if (n <= 1) {

return 1;

} else {

return n \* factorial(n - 1);

}

}

int main() {

int number = 6;

int result = factorial(number);

cout << "The factorial of " << number << " is: " << result << endl;

return 0;

}

**TASK 2**

#include <iostream>

#include <cmath>

using namespace std;

double calculateDistance(double x1, double y1, double x2, double y2) {

return std::sqrt(std::pow(x2 - x1, 2) + std::pow(y2 - y1, 2));

}

int main() {

double x1, y1, x2, y2;

cout << "Enter the x and y coordinates of the first point: ";

cin >> x1 >> y1;

cout << "Enter the x and y coordinates of the second point: ";

cin >> x2 >> y2;

double distance = calculateDistance(x1, y1, x2, y2);

cout << "The distance between (" << x1 << ", " << y1 << ") and (" << x2 << ", " << y2 << ") is: " << distance << endl;

return 0;

}

**TASK 3**

#include <iostream>

using namespace std;

int main() {

double centimeters;

cout << "Enter length in centimeters: ";

cin >> centimeters;

double kilometers = centimeters / 100000.0;

double miles = centimeters / 160934.4;

cout << "Length in kilometers: " << kilometers << " km" << endl;

cout << "Length in miles: " << miles << " miles" << endl;

return 0;

}

**TASK 4**

#include <iostream>

using namespace std;

int main() {

double a, b;

cout << "Enter the value of 'a': ";

cin >> a;

cout << "Enter the value of 'b': ";

cin >> b;

double result = (a \* a) + (2 \* a \* b) + (b \* b);

cout << "The result of (" << a << "^2) + 2 \* " << a << " \* " << b << " + (" << b << "^2) is: " << result << endl;

return 0;

}