***Q1.*** ***Write a C++ program to implement a function to calculate the power of a number through recursion.***

#include <iostream>

// Function to calculate the power of a number using recursion

double power(double base, int exponent) {

// Base case: any number raised to the power of 0 is 1

if (exponent == 0) {

return 1.0;

}

// Recursive case: calculate power using recursion

return base \* power(base, exponent - 1);

}

int main() {

// Example usage

double base;

int exponent;

// Get user input

std::cout << "Enter the base: ";

std::cin >> base;

std::cout << "Enter the exponent: ";

std::cin >> exponent;

// Calculate and display the result

double result = power(base, exponent);

std::cout << base << " raised to the power of " << exponent << " is: " << result << std::endl;

return 0;

}