# Exercises on Functions

## Exercise 1: Identify the Function Type

Identify which part is the library function and which is the user-defined function:

#include <iostream>  
#include <cmath> // for the library function  
  
using namespace std;  
  
void greet();  
  
int main() {  
 double result = sqrt(16.0);   
 cout << "Square root of 16 is: " << result << endl;  
  
 greet(); // Calling the user-defined function  
 return 0;  
}  
  
void greet() {  
 cout << "Hello from greet function!" << endl;  
}

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* **The solution:**
* **sqrt** is a library function from the <cmath>
* **greet** is a user-defined function

## Exercise 2: Library Function Usage

Complete the program by entering a number and observing the use of the library function:

#include <iostream>  
#include <cmath>  
  
using namespace std;  
  
int main() {  
 double num, powered;  
 cout << "Enter a number to powered: ";  
 cin >> num;  
  
 squared = pow();  
 cout << "The power of " <<endl;  
  
 return 0;  
}

* **The solution:**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double num, powered;

cout << "Enter a number to be squared: ";

cin >> num;

powered = pow(num, 2);

cout << "The square of " << num << " is: " << powered << endl;

return 0;

}

## Exercise 3: Basic Function Definition

This exercise introduces how to declare and define a basic function:  
Define a function named greet that takes no parameters and outputs "Hello, World!". Then, call this function from main().

#include <iostream>  
  
using namespace std;  
  
// Function declaration  
  
  
int main() {  
 greet(); // Call the greet function  
 return 0;  
}  
  
// Function definition  
  
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* **The solution:**

#include <iostream>

using namespace std;

void greet()

int main() {

greet(); // Call the greet function

return 0;

}

void greet() {

cout << "Hello, World!" << endl;

}

## Exercise 4: Function with Parameters

Write a function called displaySum that takes two integer parameters and displays their sum. Test this function by calling it with any two numbers from main().

#include <iostream>  
  
using namespace std;  
  
// Function that takes two integers and displays their sum  
  
  
int main() {  
 int x = 5, y = 10;  
 displaySum(x, y); // Call the function with two numbers  
 return 0;  
}  
  
// Function definition  
  
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* **The solution:**

#include <iostream>

using namespace std;

void displaySum(int a, int b);

int main() {

int x = 5, y = 10;

displaySum(x, y); // Call the function with two numbers

return 0;

}

void displaySum(int a, int b) {

cout << "The sum of " << a << " and " << b << " is: " << (a + b) << endl;

}

## Exercise 5: Return a Value

Create a function named triple that takes an integer as a parameter, triples it, and returns the result. Call this function in main() with a test value, and display the result.

#include <iostream>  
  
using namespace std;  
  
// Function that triples the given integer and returns the result  
  
  
int main() {  
 int value = 4;  
 int result = triple(value); // Call the function and store the result  
 cout << "Triple of " << value << " is: " << result << endl;  
 return 0;  
}  
  
// Function definition  
  
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* **The solution:**

#include <iostream>

using namespace std;

int triple(int num);

int main() {

int value = 4;

int result = triple(value); // Call the function and store the result

cout << "Triple of " << value << " is: " << result << endl;

return 0;

}

int triple(int num) {

return num \* 3;

}