

Practices on Writing Short C/C++ Programs

Problem 1.

Write a C function:

```
int is_prime(int n);
```

that returns: (1) 1 if $n \geq 2$ and n is a prime number, (2) 0 if $n \geq 2$ and n is not a prime number, and (3) -1 if $n < 2$.

Problem 2.

Write a C function:

```
int calc_gcd(int p, int q)
```

that computes and return the greatest common divisor (GCD) of two positive integers p and q .

Problem 3.

Write a C++ function:

```
template<class T> void sort_three(T& x, T& y, T& z);
```

that sorts the three input template variables from the smallest to the largest, and change the value of x , y , and z to the smallest of all, the middle one, and the largest of all, respectively. You may assume that the comparison operators (i.e., “<”, “<=”, “>”, “>=”, and “==”) are already available or overloaded for the template class to be used.