

Answer the following questions thoroughly and write C++ code where necessary. Assume that variables have been declared unless you are asked to write a declaration statement itself.

1. Write a function named `reciprocal1` that takes one `double` parameter named `num` which is **passed by reference**. If `num` is not zero, the function must set `num` to $1/\text{num}$ and returns a Boolean `true` value. Otherwise, it returns `false`.

2. Write a function named `reciprocal2` that takes one parameter named `numPtr` which is passed as a pointer to a `double`. If "that which `numPtr` points to" is not zero, the function must set "that which `numPtr` points to" to $1/\text{num}$ and returns a Boolean `true` value. Otherwise, it returns `false`.

3. Write a `void` function named `swap` that takes two parameters named `num1Ptr` and `num2Ptr` which **are passed as pointers** to `ints`. The function must swap the values that are stored in the corresponding `int` variables which `num1Ptr` and `num2Ptr` point to.

4. On the back, write a `void` function named `reverse` that takes a pointer parameter named `arrayPtr` that points to an array of integers. The function must reverse all the elements in the array. For example, if the array that is pointed to by `arrayPtr` is `{2, 5, 19, -9}` then the array will be changed to `{-9, 19, 5, 2}`. You can assume that the length of the array is 4.