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1. What is the difference between int and const int?

const int cannot be modified once initialized and int can be modified.

2. What is the difference between a function declaration and a function definition?

The function declaration declares the function's existence. It also declares the name, return type and argument type(s) if applicable. The function definition can have the same role of a function declaration, but most importantly defines the code in respect to the function.

3. What is wrong with the following C++ code? How would you fix it?

Good:

```
int sum = 0;
for(int i=0; i<1000; ++i) {
      sum += i;
}
printf("Sum of 0 to 999 is %d\n", sum);
```

Better:

```
int n = 999;
printf("Sum of 0 to %d is %d\n", n, n*(n+1)/2);
```

4. What is wrong with the following code and how would you fix it?

```
int n = 1;
if(n == 0) {
      printf("n is zero\n");
}
```

5. What is wrong with the following code and how would you fix it?

```
int n, *ptr = &n;
scanf("%d", ptr);
printf("You entered %d", *ptr);
```

6. What is the difference between the * and & operators?

The * operator dereferences a pointer, which is used to obtain a value from a memory address. The & operator is used to obtain the memory address for a value.

7. Describe what each of the following declare:
    (a) int* a; **modifiable pointer to a modifiable int.**
    (b) const int b; **unmodifiable int.**
    (c) const int* c; **modifiable pointer to an unmodifiable int.**
    (d) int* const d; **unmodifiable pointer to a modifiable int.**
    (e) const int* const e; **unmodifiable pointer to an unmodifiable int.**