ACMS 20210, Sample Exam #2

Justify your responses and show all work, unless indicated otherwise.

- You do not have to account for checking whether inputs are correct (i.e. always assume the user enters a reasonable value).

- You may assume that all vectors passed to your functions have length at least 1.

- For writing functions, you may assume that the program contains the appropriate includes, declarations, and using statements before the definition of your function.

1. At the end of execution of the following code, what is the value of a?

```
int a = 1;
int b = 3;

int *p = nullptr;

p = &a;

*p = *p + b;

p = &b;

*p = a + b;

p = &a;

b = a + (*p);

*p = a * (*p);
```

2. At the end of execution of the following code, what is the value of a?

```cpp
int a = 2;
int b = 3;
int c[4] = {0, 4, 1, 2};

int *p = nullptr;
int *q = nullptr;

p = &a;
q = &b;

*q = (*p) * (*q);
b = *p + *q + c[2];

p = c;

p[1] = a + b + *q;

p = &a;

a = a + *q;

a = a + c[1];
```

Answers: Problem 1: $a == 16$. Problem 2: $a == 31$.