1. Consider the code below:

```java
int[][] A = {{1, 2, 3, 4},
            {5, 6, 7, 8},
            {9, 0, 1, 2},
            {3, 4, 5, 6}};
int[] arr = new int[A.length];
for (int i = 0; i < A.length; i++) {
    for (int j = 0; j < A[i].length; j++) {
        if (i == j) {
            arr[i] = A[i][j];
        }
    }
}
```

(a) (4 points) Draw the array `arr` after the following code executes.

(b) (2 points) In your own words, explain what data/values are in `arr` after the code executes.

(c) (4 points) Assume the if statement (and ONLY the if statement) in the above code is changed to:
```
if(i != j) {
    arr[i] += A[i][j]
}
```
Draw the array `arr` with the above code substitution.
2. Consider the code below:

```java
Scanner in = new Scanner(System.in);
System.out.print("Enter an integer: ");
int x = in.nextInt();

switch(x) {
    case 1:
        System.out.println("1");
        break;
    case 2:
        System.out.println("2");
        break;
    case 3:
        System.out.println("3");
        break;
    case 4:
        System.out.println("4");
    case 5:
        System.out.println("5");
    case 6:
        System.out.println("6");
        break;
    case default:
        System.out.println("Error");
        break;
}
```

(a) (2 points) What is the output of the code if the user types the integer 2 at the prompt?

(b) (2 points) What is the output of the code if the user types the integer 4 at the prompt?

(c) (1 point) What is the output of the code if the user types the integer -6 at the prompt?