1. Consider the following C++ code using the if/else if format.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>String</th>
</tr>
</thead>
<tbody>
<tr>
<td>temperature &lt; 0</td>
<td>“Its bitterly cold!”</td>
</tr>
<tr>
<td>0 &lt;= temperature &lt;= 32</td>
<td>“Its freezing outside.”</td>
</tr>
<tr>
<td>32 &lt; temperature &lt; 68</td>
<td>“Light jacket weather.”</td>
</tr>
<tr>
<td>68 &lt;= temperature</td>
<td>“Its warm outside.”</td>
</tr>
</tbody>
</table>

```cpp
#include <iostream>
using namespace std;

int main() {
    cout << "Enter the temperature: ";
    int temperature, x = 9;
    cin >> temperature;

    if (temperature < 0) {
        cout << "Its bitterly cold!";
    } else if (temperature <= 32) {
        int x = 5;
        cout << "Its freezing outside."
        cout << "x = " << x << endl;
    } else if (temperature < 68) {
        cout << "Light jacket weather."
    } else {
        cout << "Its freezing outside."
    }
    cout << "x = " << x << endl;
} // end main
```

a) For the 0 <= temperature <= 32 range, why does the corresponding code NOT look like the following?

```cpp
} else if (0 <= temperature && temperature <= 32) {
``` 

b) On the above code, draw a “box” around each if/else statement.

c) The score of a variable is the part of the program that has access to the variable. On the above code, indicate the score of each variable named: and x.

d) What value is output by the last line in the program if the temperature entered was 22?
2. Consider the following switch statement.

```cpp
#include <iostream>
using namespace std;

int main() {
    int x = 9;
    cout << "Enter an integer: ";
    cin >> x;
    switch (x) {
    case 1: cout << "case 1: x = " << x << endl;
            break;
    case 2:
    case 4: cout << "cases 2 and 4: x = " << x << endl;
            break;
    case 5: cout << "case 5: x = " << x << endl;
    case 8: cout << "case 8: x = " << x << endl;
            break;
    default:
        cout << "default case: x = " << x << endl;
    }
}
```

What would be output for each of the following inputs for x:

a) x = 8

b) x = 3

c) x = 5

d) x = -10