Variables/Conditionals Lab

1. What does the following code print?

```
float x = 5/2;
println(x);

float y = 2/5;
println(y);

int a = 5;
int b = 2;
float c = 3.0;
println(5 + a/b*c – 1);
```

2. Consider the following code segment, which intends to assign a classification variable **`carClass`** the appropriate string value based on a vehicle's total interior volume as shown in the table below:

Size class	total volume
mini	Less than 85 cubic feet
subcompact	85 to 99 cubic feet
compact	100 to 109 cubic feet
midsize	110 to 119 cubic feet
large	120 cubic feet or more

```
String carClass = "";
if (volume >= 120) {
  carClass = "large";
}
else if (volume < 120) {
  carClass = "midsize";
}
else if (volume < 110) {
  carClass = "compact";
}
else if (volume < 100) {
  carClass = "subcompact";
}
else {
  carClass = "mini";
}
```

However, it does not work as intended for some values of **`volume`**. First of all, for which values does it work correctly? And for those that don't work correctly, what happened and how can you fix it?

3. Which of the following best describes the value of the Boolean expression `a && !(b || a)`?

(a) The value is always **`true`**
(b) The value is always **`false`**
(c) The value is **`true`** when **`a`** has the value **`false`** and is **`false`** otherwise
(d) The value is **`true`** when **`b`** has the value **`false`** and is **`false`** otherwise
(e) The value is **`true`** whether **`a`** or **`b`** has the value **`true`**, and is **`false`** otherwise

Fill out the true table below first:

a	b	b||a	!(b||a)	a && !(b||a)
T	T			
T	F			
F	T			
F	F			

4. Write code that given an integer variable called **`score`** containing a value between 0 and 100, you will assign the string variable **`grade`** the appropriate value in the following way:

`score`	**`grade`**
93 or above	A
84 to 92 inclusive	B
75 to 83 inclusive	C
below 75	D

Assume **`score`** and **`grade`** have already been declared and **`score`** is properly initialized.