Assignment 2

Question 1

For each of the following expressions explain **precisely** how the **type** of the expression is worked out (**note**: you are **not** being asked to evaluate the expressions):

- **a / b <= c**
- **2 * a + c > 12f**
- **7.8 < (a * b) || c != a**
- **2 * a > 4 && 2.0 < a || c > a**

Note: assume that both **a** and **b** are **int**s, and **c** is a **double**

Question 2

In this question assume that **a**, **b** and **c** are all **int**s, and **a = 12**, **b = 5**, and **c = 0**.

Explain **precisely** how the **value assigned** to **w** is computed:

```
boolean w = b < a;
```

Explain **precisely** how the **value assigned** to **x** is computed (clearly indicate which sub-expressions are evaluated and the order in which they are evaluated):

```
boolean x = b < a || a / c == 2;
```

Explain **precisely** why the following piece of code fails (clearly indicate which sub-expressions are evaluated and the order in which they are evaluated, and hence when the failure happens):

```
boolean y = b < a && a / c == 2;
```

Question 3

Consider the following code for computing the letter grade from a numeric score (assume **score** is a **double** and has been initialized, and **grade** is a **String**).

```
if (score >= 60.0)
      grade = "D";
else if (score >= 70.0)
      grade = "C";
else if (score >= 80.0)
      grade = "B";
else if (score >= 90.0)
      grade = "A";
else
      grade = "F";
```

Explain what is wrong with this code?

Hint: if you don't know the answer, try running this program (**after initializing score**). Also bracket the code fully to understand how it works – that will help you explain why it doesn't do the right thing.

Question 4

Write a Java program that reads an integer and prints out “Is Divisible By 5” or “Isn't Divisible by 5”, depending on whether the integer is divisible by 5 or not. Your program must use an **if-then-else** statement.

Submit your program plus the output of running it on some example input.

Question 5

Write a program that works the same as in Question 4, but uses a **switch** statement instead of an **if-then-else** statement.

Submit your program plus the output of running it on some example input.

Question 6

Write a program that uses a **switch** statement to compute the name of a day from a number between 1 and 7 representing the day.

Submit your program plus the output of running it on some example input.