***Lab1answers***

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**Part 1:**

1.a.i) The given output was 23 - -84

1.a.ii) the given output for system.out.println(23 - -84) is 107

1.a.iii) the difference between the two lines of code is the quotation marks inside the parentheses, quotation marks tell the program to print it as it is. Whereas, in line 25 of the code 23 is being subtracted from -84.

1.b.i) The lines of output produced are as follows:

Testing more arithmetic with negative numbers

23

-84

23 \* -84

-1932

-1932.0

1.b.ii) The last two lines of the output are different are because in the second to last line decimal isn’t present whereas in the last line of output decimal is present.

**Part 2:**

2.a) The output printed is as follows:

Printing variable values

Num1 = 50

Num2= 10

sum of num1 & num2 = 60

New value of num1 is -10

1 is the final value of num2

Adding nums (version1) -101

Adding nums (version2) -9

2.b) The name of the operation “=” is assignment operator

2.c) -9 is being printed in the last line of the output from (num1 + num2);

2.d) -101 is being printed in the secoond to last line of output from +num1 + num2

2.e) second to last line of the code is System.out.println("Adding nums (version1) " + num1 + num2); and the last line of code is System.out.println("Adding nums (version2) " + (num1 + num2)); . The difference between the two lines of code is the parentheses after the + symbol. In the last line due to parentheses num1 and num2 are being added whereas in the second to last line of the code num1 and num2 are just being printed as it is.

2.f) The java command “System.out.println” prints a new line

**Part 3:**

3.a) The error message is as follows

Exception in thread "main" java.lang.RuntimeException: Uncompilable source code - Erroneous tree type: <any>

at lab1part3.Lab1Part3.main(Lab1Part3.java:28)

C:\Users\Ebrahim\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:53: Java returned: 1

BUILD FAILED (total time: 2 seconds)

3.b) The line with error is line number 29,30 and 32

3.c) Error in line 29 is:

Cannot find symbol

Symbol: variable c

Error in line 30 is:

Cannot find symbol

Symbol: variable c

Error in line 32 is:

Variable c might not have been initialized

3.d) Refer Lab1Part3.java file included in the folder.

3.e) The integer “c” was not assigned a value that’s the reason code did not work. After the code was assigned a value i.e 64 then the code worked.

**Part 4:**

4.a) In the program Lab1Part4.java the program is raising the first value “a” to the second value “b” it can be put in other way that is This method returns the value of the first argument raised to the power of the second argument. A^B.

4.b) Recorded data for the calculation is as follows:

First set of data second set of data third set of data

a = 2 a = 3 a = 4

b = 3 b = 2 b = 4

output c = 8 c = 9 c = 256

4.c) Set of values that can crash the program are as follows

1st set : a = 6.7, b = 2.1 2nd set: a = j,b = f 3rd set: a = 65789098767,b = 56789

4.d)

The Scanner class is a class in java.util, which allows the user to read values of various types from the input source.

4.e) The **“System.out.print("Please enter a number ");”** line is used so that the user comes to know that now he has to type a value if the line isn’t included then the user wouldn’t come to know that he has to type a value.

**Part 5:**

5) Refer Lab1Part5.java

**Part 6:**

6.a) Refer Lab1Part6.java

6.b) “cast” or “casting” in java means Object of type A is actually of more specific type B, and thus gaining access to all the methods on B that you wouldn't have had otherwise. If we remove “cast” from our calculation then we won’t be able to store decimal numbers in f1 and f2.

6.c) One set of value can be if we put decimal numbers in a,b,c or d because those variables should be assigned an integer only. Another set of invalid values for the sum of fractions can be if we put all values as “0” then the output is “NaN” which is invalid or useless