

C) Scope of Variables Defined in a **for** loop Header (6.2 p.241)

1a) Open **AP1ch06lab01c.java**

b) Run and write the output: _____

2a) Before the **System.out.print("Bye");** statement add:

System.out.println();

System.out.println("x after the loop is completed = " + x);

b) Run and write what happens: _____

3a) Change the **for** line to **for (x = 1; x <= 5; x++)**

and before this **for** line add: **int x;**

b) Run and write the output: _____

Summary: If the **for** loop variable is declared in the **for** line then it can only be used inside the block of code that follows it and not outside the block of code.

D) Answer the following given the code fragment below

```
int x = 10;
while (x >= 1)
{
    System.out.print(x);
    x--;
}
System.out.print(x);
```

1) Rewrite the above as a **do** loop

2) Rewrite the above as a **for** loop, putting all 3 statements inside the **for** parenthesis

Turn in this sheet to be graded!

AP Unit 6 Lab 1 - Loops

Pts: 10

Name _____

Class Hr _____

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I. A) **do** loops (6.1 p.233)

1a) Open **AP1ch06lab01a.java**

b) Run and write the output: _____

2a) replace the **while** ($x \leq 5$) with **do**
and the **}** after the **x++**; with **} while (x <= 5);**

b) Run and write the output: _____

c) Did you get the same result as #1b)? (yes/no) _____

3a) Open **AP1ch06lab01a.java** again so that you have the original program with the while loop

b) Change the **x = 1;** to **x = 6;**

c) Run and write the output: _____

2a) replace the **while** ($x \leq 5$) with **do**
and the **}** after the **x++**; with **} while (x <= 5);**

b) Run and write the output: _____

c) Did you get the same result as #1b)? (yes/no) _____

Summary: A **do** loop is always executed at least once until the Boolean condition becomes false.
(Note: A **while** loop block may not be done if the initial Boolean condition is false.)

B) **for** loops (6.2 p.236)

1a) Open **AP1ch06lab01b.java**

b) Run and write the output: _____

2a) Replace the **x = 1;** with **x = 6;**

b) Run and write the output: _____

c) Is this output the same as what you would get if you made this a **while** loop or a **do** loop? (yes/no) _____

3a) Replace **x = 6;** with **x = 1;** and replace the **x++** with **x++;**

b) Run and write what happens: _____

4a) Replace the **x++;** with **x++** and add a **;** to the end of the **for** loop so it looks like:
for (int x = 1; x <= 5; x++);

b) Run and write what happens: _____

5a) Delete the **;** from the end of the **for** statement and change **x <= 5;** to **x >= 0;**

b) Run and write what happens: _____

Summary: A **for** loop is a shortcut for a counting while loop where the initialized statement, the test Boolean condition, and the counter statement are all collected and written in one location.

*Note: You cannot never ever put a semicolon after the counter statement.

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