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Semana 1:

Solución de ejercicios.

CAPÍTULO 3

1. Which of the following Java operators can be used with `boolean` variables? (Choose all that apply.)

1. `==`

2. `+`

3. `--`

4. `!`

5. `%`

6. `<=`

7. Cast with `(boolean)`

Answer: 1

2. What data type (or types) will allow the following code snippet to compile? (Choose all that apply.)

1. `byte apples = 5;`

2. `short oranges = 10;`

3. `_____ bananas = apples + oranges;`

1. `int`

2. `long`

3. `Boolean`

4. `double`

5. `short`

6. `byte`

Answer: 1,2,3

3. What change, when applied independently, would allow the following code snippet to compile? (Choose all that apply.)

```
3: long ear = 10;  
4: int hearing = 2 * ear;
```

1. No change; it compiles as is.
2. Cast `ear` on line 4 to `int`.
3. Change the data type of `ear` on line 3 to `short`.
4. Cast `2 * ear` on line 4 to `int`.
5. Change the data type of `hearing` on line 4 to `short`.
6. Change the data type of `hearing` on line 4 to `long`.

Answer: 6

6 What is the output of the following program?

```
1: public class CandyCounter {
2:     static long addCandy(double fruit, float
vegetables) {
3:         return (int)fruit+vegetables;
4:     }
5:
6:     public static void main(String[] args) {
7:         System.out.print(addCandy(1.4, 2.4f) + "-
");
8:         System.out.print(addCandy(1.9, (float)4)
+ "-");
9:         System.out.print(addCandy((long)(int)
(short)2, (float)4)); } }
```

1. 4-6-6.0
2. 3-5-6
3. 3-6-6
4. 4-5-6
5. The code does not compile because of line 9.
6. None of the above

Answer: 6

9 What are the unique outputs of the following code snippet? (Choose all that apply.)

```
int a = 2, b = 4, c = 2;  
System.out.println(a > 2 ? --c : b++);  
System.out.println(b = (a!=c ? a : b++));  
System.out.println(a > b ? b < c ? b : 2 : 1);
```

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6
- 7. The code does not compile.

Answer: 1,4,5

17. Given the following code snippet, what is the value of the variables after it is executed? (Choose all that apply.)

```
int ticketsTaken = 1;
int ticketsSold = 3;

ticketsSold += 1 + ticketsTaken++;
ticketsTaken *= 2;

ticketsSold += (long)1;
```

1. ticketsSold is 8
2. ticketsTaken is 2
3. ticketsSold is 6
4. ticketsTaken is 6
5. ticketsSold is 7
6. ticketsTaken is 4
7. The code does not compile.

Answer: 4

CAPÍTULO 4

- 2 What is the output of the following code snippet?
(Choose all that apply.)

```
3: int temperature = 4;
4: long humidity = -temperature + temperature * 3;
5: if (temperature >= 4)

6: if (humidity < 6) System.out.println("Too
Low");

7: else System.out.println("Just Right");
8: else System.out.println("Too High");
```

1. Too Low
2. Just Right
3. Too High
4. A `NullPointerException` is thrown at runtime.
5. The code will not compile because of line 7.
6. The code will not compile because of line 8.

Answer: 5

- 6 Which statements, when inserted independently into the following blank, will cause the code to print 2 at runtime? (Choose all that apply.)

```
int count = 0;
BUNNY: for(int row = 1; row <=3; row++)
    RABBIT: for(int col = 0; col <3 ; col++) {
        if((col + row) % 2 == 0)
            _____;
        count++;
    }
System.out.println(count);
```

1. break BUNNY
2. break RABBIT
3. continue BUNNY
4. continue RABBIT
5. break
6. continue
7. None of the above, as the code contains a compiler error

Answer: 2,3,5

9 What is the output of the following code snippet?

```
2: boolean keepGoing = true;
3: int result = 15, meters = 10;
4: do {
5:     meters--;
6:     if(meters==8) keepGoing = false;
7:     result -= 2;
8: } while keepGoing;
9: System.out.println(result);
```

1. 7
2. 9
3. 10
4. 11
5. 15
6. The code will not compile because of line 6.
7. The code does not compile for a different reason.

Answer: 6

20 What is the output of the following code snippet?
(Choose all that apply.)

```
9: int w = 0, r = 1;
10: String name = "";
11: while(w < 2) {

12:     name += "A";
13:     do {
14:         name += "B";
15:         if(name.length()>0) name += "C";
16:         else break;
17:     } while (r <=1);
18:     r++; w++; }

19: System.out.println(name);
```

1. ABC
2. ABCABC
3. ABCABCABC
4. Line 15 contains a compilation error.
5. Line 18 contains a compilation error.
6. The code compiles but never terminates at runtime.
7. The code compiles but throws a `NullPointerException` at runtime.

Answer: 6

CAPÍTULO 5

1. What is output by the following code? (Choose all that apply.)

```
1: public class Fish {  
2:     public static void main(String[] args) {  
3:         int numFish = 4;  
4:         String fishType = "tuna";  
5:         String anotherFish = numFish + 1;  
6:         System.out.println(anotherFish + " " +  
fishType);  
7:         System.out.println(numFish + " " + 1);  
8:     } }
```

1. 4 1
2. 5
3. 5 tuna
4. 5tuna
5. 51tuna
6. The code does not compile.

Answer: 6

4. What is the result of the following code?

```
7: StringBuilder sb = new StringBuilder();  
8: sb.append("aaa").insert(1, "bb").insert(4,  
"ccc");  
9: System.out.println(sb);
```

1. abbaaccc
2. abbaccca
3. bbaaaccc
4. bbaaccca
5. An empty line
6. The code does not compile.

Answer: 2

5 What is the result of the following code?

```
12: int count = 0;
13: String s1 = "java";
14: String s2 = "java";

15: StringBuilder s3 = new StringBuilder("java");
16: if (s1 == s2) count++;

17: if (s1.equals(s2)) count++;
```

```
18: if (s1 == s3) count++;
19: if (s1.equals(s3)) count++;
20: System.out.println(count);
```

- 1. 0
 - 2. 1
 - 3. 2
 - 4. 3
 - 5. 4
- 6 An exception is thrown.
- 7 The code does not compile.

Answer: 6

6. What is the result of the following code?

```
public class Lion {  
    public void roar(String roar1, StringBuilder  
roar2) {  
        roar1.concat("!!!");  
        roar2.append("!!!");  
    }  
    public static void main(String[] args) {  
        String roar1 = "roar";  
        StringBuilder roar2 = new  
StringBuilder("roar");  
        new Lion().roar(roar1, roar2);  
        System.out.println(roar1 + " " + roar2);  
    } }  
}
```

1. roar roar
2. roar roar!!!
3. roar!!! roar
4. roar!!! roar!!!
5. An exception is thrown.
6. The code does not compile.

Answer: 6

13 Which of the following can replace line 4 to print "avaJ"? (Choose all that apply.)

```
3: var puzzle = new StringBuilder("Java");  
4: // INSERT CODE HERE  
  
5: System.out.println(puzzle);
```

1. `puzzle.reverse();`
2. `puzzle.append("vaJ$").substring(0, 4);`
3. `puzzle.append("vaJ$").delete(0, 3).deleteCharAt(puzzle.length() - 1);`
4. `puzzle.append("vaJ$").delete(0, 3).deleteCharAt(puzzle.length());`
5. None of the above

Answer: 1,3