

Unit 3 Review #2 worksheet

Name: Key 10/4/23

1. What is output by the following code?

```
String unit3 = "sense of";
System.out.println(unit3.length());
```

8

2. What is output by the following code?

```
String unit3 = "sense of";
int b = unit3.indexOf(" "); -5
System.out.print(unit3.substring(b-2,b));
```

sense of  
0 1 2 3 4 5 6 7  
          | 1  
          ( se ) 3,5

3. What is output by the following code?

```
String unit3 = "sense of";
System.out.println(unit3.indexOf("s"));
```

0

4. What is output by the following code?

```
String unit3 = "sense of";
String temp = unit3.substring(0,unit3.length()-4);
System.out.println(temp);
```

sens

5. What is output by the following code?

```
String test = "hey hey what can I do?";
if(test.indexOf("hey")>3)
    System.out.println("A");
System.out.println("B");
```

B

6. Write an expression that stores a random integer from -6 to 4 inclusive into an int variable.

$$4 - (-6) + 1 = 11$$

```
int x = (int) (Math.random() * 11) - 6;
```

7. What is output?

```
System.out.println(16%7);
```

2

8. Assuming properly initialized integer variables, when would short circuit evaluation occur for this statement?

```
if ( g!=7 || h==3 )
```

if g is not 7, Java does not check the rest because this is an OR

9. Assuming properly initialized int variables, when would short circuit evaluation occur for this statement?

```
if ( g!=7 && c<2024 )
```

if g is 7 Java does not check the rest because this is an AND

10. What is output?

```
double val = Math.sqrt(25%40);
System.out.println(val);
```

5.0

```
System.out.println(Math.pow(7,2));
```

49.0

11. Simplify, assuming a and b are properly initialized int variables:

```
!( c>=d && ( c!=0 || d<1 ) )
```

$$c < d \ || \ !(c != 0 \ || \ d < 1)$$

$$c < d \ || \ (c == 0 \ \&\& \ d >= 1)$$

12. Write code to compare two String variables, **str1** and **str2**. Print "same" if they are equal, nothing otherwise.

```
if (str1.equals(str2))
    System.out.println("same");
```

13. Write the method **foundA7** which accepts two positive integers as inputs and returns true if they add up to 7 or if either is 7 and false otherwise. Examples:

```
foundA7(7,0) → returns true (a is 7)
foundA7(0,7) → returns true (b is 7)
foundA7(3,4) → returns true (they add to 7)
foundA7(2,4) → returns false (neither is 7 and they don't add to 7)
```

```
public boolean foundA7(int a, int b) {
    if (a == 7 || b == 7) return true;
    if (a + b == 7) return true;
    return false;
}
```

Use the Dot class here to answer the next question.

```
public class Dot
{
    private int num;

    public Dot() {
        //when a Dot is created, it gets a random integer stored in it. Implementation not shown }

    public int getDotNum() {
        //returns the Dot's num value
        //implementation not shown }
}
```

14. In other code, someone creates two Dot objects, A and B. Write code below using an **if / else if / else structure** to check and print which Dot object has the higher number of if they are the same.

```
if (A.getDotNum() > B.getDotNum())
    System.out.println("A is higher");
else if (A.getDotNum() < B.getDotNum())
    System.out.println("B is higher");
else System.out.println("A and B are the same.");
```

15. Write a method that returns the String that was sent to it with the first and last characters swapped. For example, if you sent over "dog" it would return "god". Make the method work with any length String greater than or equal to 3. Assume that str has 3 or more characters.

```
public static String swapper(String str) {
    return str.substring(str.length()-1) + str.substring(1, str.length()-1) +
        str.substring(0,1);
}
```