

Unit 3 Review

Name: _____

1. Write an expression that stores random integers from -3 to 3 inclusive into an int variable.

7. What is output?

```
System.out.println(13%5);
```

2. When would short circuit evaluation occur for this statement?

```
if (x<y || z>8)
```

8. Complete this truth table:

A	B		!A B
T	T		
T	F		
F	T		
F	F		

3. When would short circuit evaluation occur for this statement?

```
if (x<y && z>8)
```

9. Assume properly initialized variables. Circle the option that best describes the result:

```
( x > y ) || !( x > y && y == 7 )
```

Always false.

False when x is greater than y.

Always true.

False when y == 7.

4. What is output?

```
int x = 1;
if( x == 3 )
    System.out.println("C");
    System.out.println("A");
System.out.println("T");
```

10. Finish this code below to print " cold" if temp is less than 68, "just right" if temp is from 68 to 75 inclusive, and "hot" if temp is greater than 75.

```
int temp = /* initialized with valid data*/;
```

5. What is output?

```
System.out.println(Math.pow(5,2));
```

6. Simplify:

```
!( x==9 || x<y )
```

11. Write code to compare two String variables, **name1** and **name2**. Print "same" if they are equal.

12. What, if anything, is wrong with this if statement?

```
if cost = 5;
{
    System.out.println("the cost is 5");
}
```

13. What is output by the following?

```
int a = 7;
int b = 10;
System.out.println(b==a);
```

14. What is output by the following?

```
String c = new String("tiger");
String d = new String("tiger");
System.out.print(c==d);
System.out.println(c.equals(d));
```

15. The following code gets a String from the user and store it in **temp**. Write code to check if the String **temp** is in the variable **phrase**. If it is present, print "found", if not, print "not found."

```
String phrase = /*initialized with valid data */;
Scanner scan = new Scanner(System.in);
System.out.println("Enter a word: ");
String temp = scan.nextLine();
```

16. What is output?

```
int x = 31 % 8;
if ( x > 10)
    System.out.println(1);
else if ( x > 8 )
    System.out.println(2);
else if ( x > 6 )
    System.out.println(3);
else if ( x > 4 )
    System.out.println(4);
else
    System.out.println(5);
```

17. Write the method **thirteenCheck** which accepts two integers as inputs and returns true if either of them is 13 or if their sum or difference is equal to 13 and returns false otherwise.

```
public boolean thirteenCheck(int a, int b) {
```

```
}
```

18. $!(x < y \ \&\& \ w == z)$ is the same as which boolean expression?

- a. $x \leq y \ \&\& \ w == z$
- b. $x \geq y \ || \ w != z$
- c. $z \geq y \ \&\& \ w != z$
- d. $x \leq y \ || \ w != z$
- e. $x < y \ \&\& \ w != z$

19. What is output by the following?

```
String temp = "I am the boss of
substrings!";
int x = temp.indexOf("ss");
String small = temp.substring(x+3,x+5);
System.out.println(small);
```

20. What is printed by the following?

```
String temp = "mars lander";
System.out.println(temp.length());
```

21. What is output by the following?

```
String name = "Hays";
if(name.indexOf("Y")>-1)
    System.out.print(1);
if(name.substring(1,2).equals("Ha"))
    System.out.print(2);
int x = name.length()-1;
if(name.substring(x).equals("s"))
    System.out.print(3);
if(name.length()==3)
    System.out.print(4);
else
    System.out.print(5);
```

22. What is output by the following?

```
int a = 8;
String temp = "";
if(a<3)
    temp+="a";
if(a<7)
    temp+="b";
if(a<11)
    temp+="c";
if(a<15)
    temp+="d";
System.out.println(temp);
```

23. Write a single line of code to compare the given String variables and print "true" if they are equal and "false" if they are not equal.

Do this using a single line of code.

```
String x = /*initialized with valid data*/;
String y = /*initialized with valid data*/;
```

24. What is output by the following code?

```
int c = 7;
if(c<10)
{
    System.out.println("A");
    if(c>8)
    {
        System.out.println("B");
    }
    else
        System.out.println("C");
}
```

The last question uses the following class:

```
public class Frog
{
    //attributes not shown

    public Frog() {
        //implementation not shown }

    public void hop(int n) {
        //moves Frog forward n spaces
        //implementation not shown }

    public int getLocation() {
        //returns Frog location
        //implementation not shown }
}
```

25. Consider the following code, which sets up a race between two Frogs, where each Frog hops forward by a random integer value from 1 to 10.

```
Frog a = new Frog();
Frog b = new Frog();
a.hop((int) (Math.random()*10)+1);
b.hop((int) (Math.random()*10)+1);
```

Write code to check and report which Frog wins the race or if it is a tie.