Final Exam Review #3 Name: Key 12-9-22

1. Write a line of code that prints "love" using .substring and the String a:

```
String a = "ungloved";
           01234567
```

```
System.out.println(a.substring(3,7));
```

2. What is output by the following:

```
String a = "teach";
for(int i = a.length()-1; i>-1; i-=2)
   System.out.print(a.substring(i,i+1));
```

hat

3. Write code to store a random integer from 11 to 18 inclusive in a variable named **temp**:

```
int temp = (int)(Math.random()*8)+11;
```

4. Write a for loop that prints the numbers 17, 15, 13, etc. down to 1.

```
for(int i=17; i>0; i-=2)
   System.out.println(i);
```

5. Write code to print the last two characters of String **str**. Assume the String contains two or more characters.

```
Scanner scan = new Scanner(System.in);
String str = scan.nextLine();
```

```
System.out.println(str.substring(str.length()-2));
```

6. The Thing class has one instance variable "number". When you create a Thing, you have to send over a positive int which gets stored in **number**. The Thing class has one method: public int getOne() which returns a random integer from between –number and number inclusive. Write the complete Thing class.

```
class Thing
{
   private int number;
   public Thing(int n)
   {
      number = n;
   }
   public int getOne()
   {
      return (int)(Math.random()*(2*number+1))-number;
   }
}
```

7. Write code that uses the Thing class from problem 6 and creates a Thing array with 1000 elements. Leave the element at index 0 as null, and instantiate all the remaining elements with their index number. Then write one line of code which uses the .getOne() method on one of the Thing objects.

```
Thing[] Things = new Thing[1000];
for(int i=1; i<Things.length; i++)
   Things[i] = new Thing(i);
System.out.println(Things[591].getOne());
```

8. Declare a boolean array of size 100 named **vals**.

```
boolean[] vals = new boolean[100];
```

9. After declaring the array in problem 8, what is the value of **vals[42]**?

false

10. Declare a String array **words** of size 100.

```
String[] words = new String[100];
```

11. What would be printed by the following code?

```
System.out.println(words[99]);
```

null

12. Given the following code, write an **enhanced for loop** that counts and then prints how many entries in **words** are longer than 10 and contain "lov". Assume the array contains at least one entry.

```
String[] words = //properly initialized;
int count = 0;
for(String w: words)
  if(w.length() > 10 && w.indexOf("lov") > -1)
      count++;
System.out.println(count);
```

13. Given the following code, write an **enhanced for loop** that prints all values from the array **nums** that are less than 17. Assume the array contains one or more proper values.

```
double[] nums = //properly initialized;
for(double d: nums)
  if(d<17) System.out.println(d);
```

13. Given the following code, write code that counts and then prints how many times a 1 immediately follows a 0 in the int array **entries**. For example, if entries contained { 1, 0, 1, 0, 0, 1, 1 } your code would print 2.

```
int[] entries = //properly initialized;
int count = 0;
for(int i=1; i<entries.length; i++)
  if(entries[i]==1 && entries[i-1]==0)
      count++;
System.out.println(count);
```

Note: you could also start the loop at 0 and go to i<entries.length-1 and compare [i] with [i+1]