CS 101: Practice Questions for Test 1

1. Write a Java application which prompts the user to enter 15 integers, then computes the sum, and then prints the sum to the screen.

2. Recall the Pythagorean Theorem says that if $a, b$ are the lengths of two edges of a right triangle, then the length of the hypotenuse $c$ is given by

$$c^2 = a^2 + b^2.$$ 

Write a Java application which prompts the user to enter the lengths of two edges of a right triangle and then computes the length of the hypotenuse.

3. What is the output of the following code fragment?

   ```java
   int x = 1;
   while (x<5){
       System.out.println(x);
       if (x==3)
           x++;
       else
           x = x+2;
   }
   ```

4. What is the output of the following code fragment?

   ```java
   for (int j=1; j<=5; j++){
       for (int i=1; i<=4; i++)
           System.out.print("x");
       System.out.println();
   }
   ```

5. Which of the following are valid Java identifiers?

   XBox
   $3t4$
   hop-toad
   if
   2ndFloor
   MyGoodness
6. What is the output?

```java
public class EnumerateSeasons{
    enum Season{Spring,Summer,Fall,Winter}
    public static void main(String[] args){
        Season s = Season.Spring, t = Season.Winter;
        System.out.println(s.name());
        System.out.println(t.ordinal());
    }
}```

7. The Java compiler produces
   (a) Java bytecode
   (b) machine language
   (c) assembly language
   (d) an iterated list
   (e) an html file

8. A byte is
   (a) 256 bits
   (b) 4 bits
   (c) 8 bits
   (d) approximately 1000000 bits
   (e) 1/8 of a bit

9. The Java expression
   5/2+3
   evaluates to
   (a) 1
   (b) 5
   (c) 5.5
   (d) 0
10. Which are the following is part of the hardware of a computer system?
   (a) operating system
   (b) compiler
   (c) interpreter
   (d) bus
   (e) bytecode

11. Write a Java expression which represents the floating-point constant two thirds.

12. If $x$ and $y$ are Java variables of type `double`, write the Java code for the mathematical expression
   \[ \frac{x^2 + 2}{3y - 5} \]

13. Write a Java application which rolls two standard dice (generates two random integers from 1 to 6), and prints out their sum.

14. For each of the following pairs, which represents a class and which represents an object of that class?
   (a) Celebrity, Britney Spears
   (b) Mickey Mouse, Rodent
   (c) Author, William Shakespeare
   (d) Sport, Baseball

15. Assume $n$ is a Java variable of type `int`. Write a code fragment to print to the screen `positive` if $n$ is positive, `zero` if $n$ is zero, and `negative` if $n$ is negative.