Study questions set #2

//1. How many bytes are used for each of the following data types?
byte
short
int
long
boolean
char
float
double

//(2-3) Implement the following methods.

//2. Returns true if an odd number of arguments are true.
public static boolean oddNumTrue(boolean a, boolean b, boolean c) {
...
}

//3. Returns the sum of squares from 1^2 to N^2, but with alternating sign. For example, altSumSquares(5) is 1 - 4 + 9 - 16 + 25.
public static int altSumSquares(int N) {
...

//(4-6) Implement the following methods with nested loops.
//Each prints a “square” of characters to the console.
//The size parameter specifies the side-length of the square.

//4. The square has '*' below the diagonal, and '$' on and above.
// For example, loopPractice1(10) will print
// $$$$$$$$$$$
// *$$$$$$$$$$
// **$$$$$$$$$
// ***$$$$$$$$
// ****$$$$$$
// *****$$$$$
// ******$$$$
// ********$$
// *********
// *********
public static void loopPractice1(int size) {...}
//5. The square has '*' on and above the anti-diagonal, and '$' below. For example, loopPractice2(10) will print
   ********
   ********$
   ********$
   ********$
   ********$
   ********$
   ********$
   ********$
   ********$
   ********$
   public static void loopPractice2(int size) {...}

//6. The square has '*' below a shifted diagonal; '$' on and above. The shift parameter determines how far from the main diagonal. For example, loopPractice3(10, 3) will print
   *********
   *********
   *********
   *********
   ********$
   ********$
   ********$
   ********$
   ********$
   ********$
   public static void loopPractice3(int size, int shift) {...}
// 7. You are provided with the following class definition:
public class Trace {

    int data; // Instance field

    public Trace(int dat) { // Constructor
        data = dat; // Initialize instance field with parameter
    }

    public void bump() { // Instance method
        data = data + 1; // Increments instance field
    }

    public void group(Trace other) { // Instance method
        data = data * other.data; // Multiplies instance fields
    }

}

// In the margin, write the full console output from the following:
public static void main(String[] args) {
    Trace tr1 = new Trace(3);
    Trace tr2 = new Trace(5);

    System.out.println(tr1);
    tr2.bump();
    System.out.println(tr1);
    tr1.group(tr2);
    System.out.println(tr1);
    tr2.group(tr1);
    System.out.println(tr2);
}