Practice Problems: Conditions

1. Understanding code
Draw a representation of what the computer's memory looks like at the end of each of these programs:

```java
public class Boolean Declarations {
    public static void main(String[] args) {
        boolean b;
        boolean c = true;
        boolean d = false;
        boolean e = c;
        c = false;
    }
}

public class Boolean Expressions {
    public static void main(String[] args) {
        boolean b = true || false;
        boolean c = false && true;
        boolean d = !b || c;
        b = !b;
        d = !(b && (c || d));
    }
}
```
public class Relational-Expressions {
    public static void main(String [] args) {
        int x = 3;
        double y = 4.7;
        boolean b = x <= y && y <= 2 * x;
        boolean c = 2 * x == x + 3;
        boolean d = b && x != 3;
    }
}

public class Conditions-Basic {
    public static void main(String [] args) {
        boolean b = true;
        System.out.println(b);
        if(b==false) {
            System.out.println("reached here");
        }
    }
}
public class Complex-Conditions {
    public static void main(String [] args) {
        int x = 3;
        double y = 4.7;
        if(x <= y && 2 * x >= y + 1) {
            System.out.println("reached here?");
        }
        System.out.println("and here?");
    }
}

class Conditions-IfElse {
    public static void main(String [] args) {
        int x = 3;
        double y = 4.7;
        if(x > y) {
            System.out.println("x = " + x);
        } else {
            System.out.println("y = " + y);
        }
        System.out.println("reached here?");
    }
}

class Conditions-If-ElseIf {
    public static void main(String [] args) {
        int x = 3;
        double y = 4.7;
        if(x > y) {
            System.out.println("x = " + x);
        } else if(x > 3) {
            System.out.println("y = " + y);
        }
        System.out.println("reached here?");
    }
}

class Conditions-If-ElseIf-Else {
public static void main(String[] args) {
    int x = 3;
    double y = 4.7;
    if (x > y) {
        System.out.println("x = " + x);
    } else if (x > 3) {
        System.out.println("y = " + y);
    } else {
        System.out.println("x <= 3");
    }
    System.out.println("reached here?");
}

2. Writing Java Programs with Conditions
   a. Write a program that reads in an int from the keyboard, and prints a message saying whether it is positive or negative.
   b. **Write a program that reads two ints from the keyboard, and prints a message saying whether the first one divides the second one evenly.