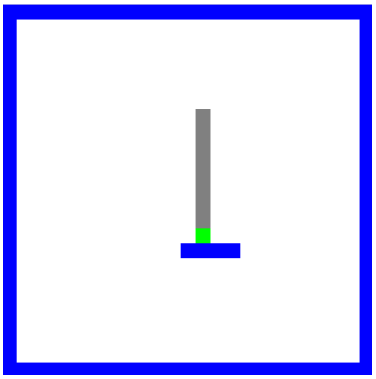
Unit 1 Practice Test

Questions 1 and 2 are based on the following scenario from the Picobot environment:



Picobot is the green cell, the blue cells represent walls/obstacles, and the gray cells have already been covered by Picobot.

1. Given the conventions covered in lecture, which of the following strings describes Picobot's surroundings in the above picture?

   A. eNSw
   B. xxSx
   C. xNxx
   D. Nxxx
   E. xxxS

2. Consider the following Picobot rules:

```
rule I:   0 *xxS -> E 0
rule II:  0 ***S -> W 0
rule III: 0 *xxS -> W 1
```

   If Picobot is currently in state 0 and finds itself in the situation shown above, which of these rules *on its own* would lead Picobot to move *more than one* position? (In other words, which of the rules would ultimately cause Picobot to move multiple times if that rule was *the only rule* in the program?)

   A. only I
   B. only II
   C. I and II, but not III
   D. I and III, but not II
   E. II and III, but not I
   F. none of them

3. Which of the following is *not* a valid Java statement?

   A. `System.out.println("The moon said, "Goodbye!"");`
   B. `System.out.println("Goodbye, moon!");`
   C. `System.out.print("Goodbye, moon!");`
   D. `System.out.println();`
   E. none of the above (i.e., all of the above statements are valid)

4. Consider the following three labels:

   I. `me2`
   II. `class`
   III. `4sure`

   Which of them is a valid *identifier* in Java?

   A. only I
   B. only II
   C. only III
   D. I and II, but not III
   E. I and III, but not II
   F. I, II, and III

5. What is the output of the following Java program?

```
public class Problem5 {
    public static void method1() {
        System.out.print("X ");
    }
    public static void method2() {
        System.out.print("Y ");
    }
    public static void main(String[] args) {
        System.out.print("Z ");
        method2();
    }
}
```

   A. `X Y Z`
   B. `X Y Z Y`
   C. `Z Y`
   D. `Y Z`
   E. none of the above

6. The following Java program includes a number of syntax errors.

```
public class Foo
    public static void B {
        System.out.println "I need some Java"
    }

    public static main(String[] args) {
        B()
    }
}
```

Find and fix all of them, writing the corrected version in the space below.

7. We need a Java program that will produce the following 8 lines of output:

```
-3-
-2-
-1-
Wait! Start again!
-3-
-2-
-1-
Blastoff!
```

Complete the template given below to create a program that will produce this output. In addition to the `main` method, your program should have one additional method, and you should employ appropriate procedural decomposition as discussed in lecture.

```
public class Countdown  {

    public static void main(String[] args) {









    }

    // Put your additional method below.









}
```