

**AP CS A – Karel J Robot**  
**Review Sheet Chapters 1-3**

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Per: \_\_\_\_\_

1. In the robot world –
  - a) streets run which directions?
  - b) avenues run which directions?
  - c) streets are numbered:
  - d) avenues are numbered:
  - e) the three objects which can be placed are
  
2. What instruction gives a robot the ability to
  - a) change his location
  - b) rotate 90° counter-clockwise
  - c) capture a beeper
  - d) deposit a beeper
  
3. What effect do the following instructions have?
  - a) move
  - b) turnLeft
  - c) pickBeeper
  - d) putBeeper
  - e) turnOff
  
4. What use do the following have in the Java programming language
  - a) { }
  - b) extends
  - c) void
  - d) public (used in front of method headings)
  - e) super (as used in the constructor)
  
5. Explain “error shutoff” – its causes and effects
  
6. Explain the following errors and their effect on execution:
  - a) lexical
  - b) syntax
  - c) intent
  - d) execution
  
7. Explain “stepwise refinement”.

8. Relate the following terms to each other using complete sentences (it will take you about a paragraph of ten sentences or so for a good explanation): **'class', 'superclass', 'subclass', 'extends', 'inherits', 'is-A', 'encapsulation', and 'abstraction'**. In your description, you are also defining/making clear what these terms mean/are – do not be general – use examples to help explain.

Programming:

1. Completely define a new class called `Review` which can perform the following:
  - move
  - turnLeft
  - jumpAndSpin (move one block forward and then face the opposite direction)
  - turnOff
  - moveFourAndDrop (move forward 4 blocks and then drop a beeper)
  - putBeeper
  - pickBeeper
  - turnAround (180°)

While writing this class, you should take advantage of any classes we've written in class.

2. Write a complete client program which will create a robot at the origin facing south with 2 beepers. The robot should then proceed to 5<sup>th</sup> street and 1<sup>st</sup> avenue to drop a beeper; then it should proceed to 2<sup>nd</sup> street and 1<sup>st</sup> avenue and deposit the last beeper. The robot should end up at the origin facing north. Try to use the least number of statements possible and you must use the `Review` class above (assume it works regardless of what you wrote above).

```
public class Sample implements Directions
{
    public static void main(String[] args) {
        // your client code goes here...

    }

    static {
        // don't worry about this code
    }
}
```