Lab 5  Name:______________________  Checked:_____

Objectives:
Practice creating and modifying Java applets and using methods of the Graphics class.

Preparation: Get to know the Graphics coordinate system
1. Download the http://www.csc.villanova.edu/~map/1051/Chap02/Snowman.java applet. Compile and run it to see the image it produces.

2. Refer to the code to create a sketch of the image on the grid below. Begin by drawing a frame around the image. Note the width: ________and height: ________

Always referring to the code, create the sketch, being careful to place all lines, ovals, and rectangles (sky, ground, sun, snowman head, torso, hat, arms, etc.) in their correct positions in the coordinate system. To show that you really understand the coordinate system, include labels giving the (x,y) coordinates of at least 5 reference points – e.g., the snowman’s hat, the sun, the ground, the snowman’s left arm, etc.).

3. Scan or take a picture of this page and submit through blackboard under “Lab 5 Prep”
Part A
Check the work you did for preparation (coordinate system drawing) with your partner.

Verify that the both of you have correctly determined:
- Width & height of applet
- Placement for all the elements
- Labels for at least 5 points

Classmate signature: ________________________________________

Part B
We will create a new applet called FancySnowman.java by modifying the current Snowman applet - begin by saving the current snowman applet under the new name (remember to change the name in all places where it occurs, including the comments)

Verify that the new applet still compiles and runs (it should still look the same).

Make the following changes to the applet. For each change, try sketching out the change first on your drawing, marking the specific coordinates. Then, write the code to implement it. Check result after each change.

- Move the snowman to the right (Note: Do this by changing the value of MID)
- Add comments to your program explaining the constants MID and TOP
- Change the color of the ground to gray
- Change the color of the sky to pink
- Change the color of the sun to red
- Change the snowman's eyecolor to blue. Optional: Make him look like he is winking!
- Add a highlight to the snowman's hat
- Change his arms so that he is waving with the right arm instead of the left one
- Put in some rays of sunshine
  - Note: you do not need to do this using a formula or a loop. If you choose to use the formula to find points along the circumference of a circle, the rays come out evenly spaced, as in the example below. Alternatively, you can just try to eyeball some points around the sun, and create lines from the top left corner to these points. Either way, be sure to create at least six rays.
- Add a fence in front of the snowman - it should go up to around halfway his torso
  - This definitely needs to get done using a loop!
  - Hint: If you are having trouble figuring out how to do this, start by putting in a single fence post; then add a second one. Can you see what changes in your code between the first and second fence post? Think about how to turn this into a loop.
Lab 5 Comments Name:_________________ Checked: ______

Comments on this lab, please:

What was the most valuable thing you learned in this lab?

What did you like best about this lab?

Was there any particular problem?

Do you have any suggestions for improving this lab as an effective learning experience?