

A. Vocabulary

Fill in the table to answer each set of questions about the terms listed to the left. Only the rightmost column needs to be filled in. There are no typos – arguments or parameters may be missing so they can be asked about. Assume methods are used as we have practiced in class and was modeled for you.

Term	Question(s)	Your answer
setContentPane(x)	(a) Variable x is what data type? (b) If this line was omitted from an Applet, what would happen? Describe in detail.	(a) (b)
drawPolygon()	(a) What data type is the argument for this method? (b) Describe the second parameter for this method.	(a) (b)
setBackground(c)	(a) What does this method do, in detail? <i>Do not use words that are part of the method name to explain.</i>	(a)
super.paintComponent()	(a) What does this method do, in detail? <i>Do not use words that are part of the method name to explain.</i>	(a)
Pixel	(a) Show one line of code that uses one or more pixel value.	(a)
requestFocus()	(a) In what method might this code be called? <i>Give one answer.</i> (b) We use this code in class so what Listener other than FocusListener can be used?	(a) (b)
mouseEntered()	(a) What does a user have to do to trigger this event handler method?	(a)
implements	(a) Where is this term used? (b) What type of term follows it?	(a) (b)
keyPressed()	(a) What key can be pressed, but not typed? <i>Give one answer.</i>	(a)
AWT	(a) What kinds of tools/things are in this library?	(a)

B. Drawing

On the graph grid provided, show the output of the code. You may “color in” shapes with a pattern if you do not have colored writing tools; just make a legend to show what pattern correlates with what color. Assume the top left corner of your entire grid is (0, 0) and each square is 10 x 10.

```
int [] a={0, 10, 70, 80, 100, 60, 40, 60};
int [] b={90, 80, 140, 120, 140, 180, 160, 150};
setBackground(Color.CYAN);    //cyan is blue-green
super.paintComponent(g);
g.setColor(Color.GREEN);
g.fillRect(0, 50, 240, 170);
g.setColor(Color.YELLOW);
g.fillPolygon(a, b, 8);
g.drawString("Sport", 90, 210);
g.setColor(Color.MAGENTA);    //magenta is hot pink
for(int y=90; y<=150; y+=60)
    g.fillOval(160, y, 30, 30);
g.setColor(Color.BLACK);
for (int x = 180; x<=200; x+=10)
    g.drawArc(x, 140, 40, 80, 0, 180);
```

C. Program: GardenGrows.java

Write the minimal HTML that will run the program GardenGrows.java (use a size appropriate for the output, below), which is a JApplet. The dimensions should make sense based on the needs of the program.:

Write the complete Java code to get the following program to run.

- GardenGrows.java is a very short JApplet in which an instance of the JPanel class called Garden.java is made, then added to the JApplet's visible space.
- Please import all libraries needed for both GardenGrows.java and Garden.java immediately above the GardenGrows.java class.

Write the JApplet code and libraries below:

- Garden.java is a JPanel that responds to clicking of the mouse and use of the keyboard.
 - In paintComponent(), a big rectangular garden is drawn that is 100 x 50 and has its top left corner at (50,50).
 - The garden initially is PINK (just pink dirt).
 - After the user has watered the garden, the garden will become GREEN. To water, the user clicks the mouse anywhere within the space of the garden, then uses the keyboard to input '%.' No scanners should be used – please use a Key Event.
 - After the user has added sun to the garden, the garden will flower. To add sun, the user will click with the mouse anywhere on the garden and use the keyboard's up arrow. Flowering is produced graphically by drawing 5x5 pixel filled circles in a loop, so flowers appear every 20 pixels to the right and left, and up and down, only in the garden space. This would be on top of the green that showed before, meaning that no flowers will show if there has not also been water applied.
 - There should be no response if the user clicks off the garden and waters or applies sun.
 - No other user input needs to be processed, and the program/game does not need to be able to restart.

Write the complete JPanel class code below and on the back of this sheet: