Worksheet VI

Answer all the problems completely on a separate sheet of paper. Read all the problems closely, and ask if you have any questions on what a problem means. This worksheet is due at the start of class on Mon, Nov 03.

Problem 1 (4 pts)

What does the acronym **NURBS** (as in "NURBS curve") stand for? Explain the meaning of each component in a sentence or so. For example: "The N stands for <X>, meaning the curve is <Y>." *Hint:* try working backwards through the acronym!

Problem 2 (8 pts)

Write a function (in code!) that draws a line using **Bresenham's Algorithm**, when the line's slope is less than -1 (e.g., $-\infty < m < -1$).

You can write this method either in JavaScript, Java, or a "pseudo" version of either. The syntax is less important than the precise algorithm and operations. You should assume the existence of a `setPixel(int x, int y, int color)` method that you can call to set the color of a particular pixel.

Problem 3 (3 pts)

What is **aliasing**, and what causes it? Also give a specific example in terms of the "jaggies" when drawing lines.

Problem 4 (3 pts)

What is the difference between **high pass filter** and **low pass filter**? Give one example of what each of these filters are used for in computer graphics.

Problem 5 (3 pts)

What is **supersampling**, and how is it used in *anti-aliasing* (e.g., explain the process). What is one drawback to this approach?