Matlab Midterm 1 Part 2 Report

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Midterm Problem 1.4

At the beginning, I asked for the input to get the value of "d" for later calculation. Also, I declared the interval if X, which will be divided into four segments later on. After all of the above, I set up the functions given by the problem, then I found that the curve met its singular points at "-5", "d", and "2d". Hence, I applied the find() function to get the corresponding interval of the four segments.

With the four segments, I was able to draw each segment in different color, also by pausing the curve, I got to display a nice animated curve with the limited x and y axis in [-10 10].

Midterm Problem 1.5

After obtaining the chosen option from the user, I divide the problem into four parts, which are

(1) quit the program
(2) Sweeping line
(3) Red Intensity
(4) Spotlight

In the first part, I quit the program of the user input 0 for the option.

In the second part, I build a three-loop structure. The outer loop controls the position of the sweeping line and the two loops inside draws the line by whitening the pixel that meets the current position and the single pixel on its left and right of the line, so I get a sweeping line with width = 3.

In the third part, I'm planning to render a 320 x 10 rectangle over the picture, and make the value of "r" of the RGB value into 0, which makes me able to clear the red intensity.

In the forth part, I set a point align by the vertical midline of the picture which is the center of the spotlight circle. When the center renders through the midline, points with the distance under "r" in the picture will be brighten or darken. If it was darken this time, it will be brighten for the next time.