2001 Paper 4 Question 10

Computer Graphics and Image Processing

(*a*) Describe an algorithm to draw a straight line using only integer arithmetic. You may assume that the line is in the first octant, that the line starts and ends at integer co-ordinates, and that the function *setpixel*(x, y) turns on the pixel at location (x, y). [8 marks]

(*b*) Describe Douglas and Pücker's algorithm for removing superfluous points from a line chain. [10 marks]

(*c*) Under what circumstances would it be sensible to employ Douglas and Pücker's algorithm? [2 marks]

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