Nur Wulan C

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No.

Date

Grafkom – 4.

1) Diketahui titik awal p(1,1) dan titik akhir di (10,10) dengan area cliping x min = 1, y min = 1, x max = 7 y max = 7. Selesaikan masalah ini dengan clipping Cohen Sutherland.

* Garis p(1,1)
  L = 0 karena 1 < 1 (xmin)
  R = 0 karena 1 < 7 (xmax) Vertex p = 0000
  B = 0 karena 1 < 1 (ymin)
  T = 0 karena 1 < 7 (ymax)

* Garis Q (10,10)
  L = 0 karena 10 < 1 (xmin) Vertex Q = 0101
  R = 1 karena 10 < 7 (xmax)
  B = 0 karena 10 < 1 (ymin)
  T = 1 karena 10 < 7 (ymax)

* Region code 0000 AND 0101 = 0000 //.

•) $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10-1}{10-1} = \frac{9}{9} = 1$

•) $x_{p_1} = x_1 + \frac{y_{min} - y_1}{m}$

$= 1 + \frac{1-1}{1}$

$= 1 + \frac{0}{1}$ 1

•) maka titik potong = (x_{p_1}, y_{min})
= (1, 1)
pada garis PQ. //

2) Berdasarkan soal no.1 lakukan clipping menggunakan algoritma Liang - Barsky dimana $x_l = 1$; $x_r = 7$, $y_b = 1$ dan $y_t = 7$

→ $\Delta x = x_2 - x_1$
$= 10 - 1 = 9$

$\Delta y = y_2 - y_1$
$= 10 - 1 = 9$

$p_1 = -\Delta x$
$= -9$

$q_1 = x_1 - x_l$
$= 1 - 1 = 0$

$p_2 = \Delta x$
$= 9$

$q_2 = x_r - x_1$
$= 7 - 1 = 6$

$p_3 = -\Delta y$
$= -9$

$q_3 = y_1 - y_b$
$= 1 - 1 = 0$

$p_4 = \Delta y$
$= 9$

$q_4 = y_t - y_1$
$= 7 - 1 = 6$

- $\frac{q_1}{p_1} = \frac{0}{-9} = 0$
- $\frac{q_2}{p_2} = \frac{6}{9} = \frac{2}{3}$
- $\frac{q_3}{p_3} = \frac{0}{-9} = 0$
- $\frac{q_4}{p_4} = \frac{6}{9} = \frac{2}{3}$

- u/ $(p_1 < 0)$ T_1 = "max" (0,0,0)
$= 0$
- untuk $(p_1 > 0)$ T_2 = "min" (2/3, 2/3, 1)
$= 2/3$

$T_1 < T_2$

* $T_1 = 0$

$x_1' = x_1 + \Delta x \times T_1$
$= 1 + 9 \times 0 = 1$

$y_1' = y_1 + \Delta y \times T_1$
$= 1 + 9 \times 0 = 1$

$(x_1', y_1') \rightarrow (1,1)$ //

* $T_2 = 2/3$

$x_2' = x_1 + \Delta x \times T_2$
$= 1 + 9 \times 2/3 = 7$

$y_2' = y_1 + \Delta y \times T_2$
$= 1 + 9 \times 2/3 = 7$

$(x_2', y_2') \rightarrow (7,7)$ //