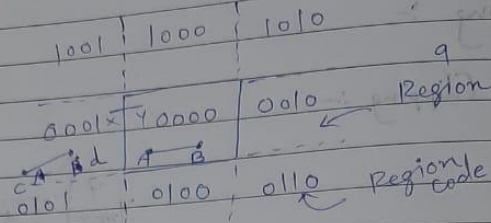


TBRL

Date

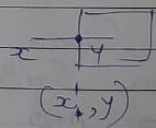


→ Zero cases:-

✓ (1) line completely inside :-
check code for A, B.
both 0000

✗ (2) line completely outside :-
c = 0001
d = 0001
0001 → Not 0000 → outside
logical AND

(3) partially inside :-
x = 0001
y = 0000
0000



* To find intersection point :-

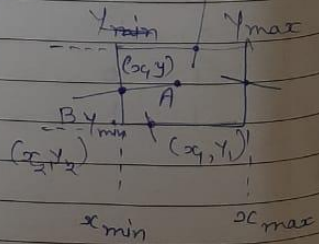
(1) Left Boundary:-

$$x = x_{min}$$

$$\text{slope formula} =$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{y - y_1}{x - x_1} = \frac{y - y_1}{x_{min} - x_1} = m$$



$$\therefore y = y_1 + m (x_{\min} - x_1)$$

(2) Right Boundary:-

$$x = x_{\max}$$

$$\therefore y = y_1 + m (x_{\max} - x_1)$$

(3) Top:-

$$y = y_{\max}$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{y - y_1}{x - x_1} = \frac{y_{\max} - y_1}{x - x_1}$$

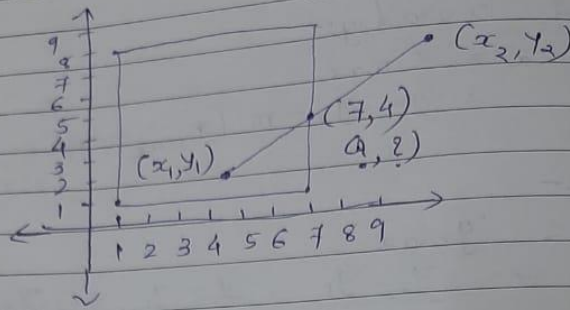
$$\therefore x = x_1 + \frac{(y_{\max} - y_1)}{m}$$

(4) Bottom:-

$$y = y_{\min}$$

$$\therefore x = x_1 + \frac{(y_{\min} - y_1)}{m}$$

* Example:-



Given:- BL (1,1)

UR (7,9)

Line :- $P_1(5,2)$ $P_2(9,6)$

- Check according region codes, draw figure. Find Intersection point to clip off the outside part.

Here UR (7,9) = (x_{max}, y_{max})

BL (1,1) = (x_{min}, y_{min})

$\therefore x = x_{max} = (7)$ x value of
 \hookrightarrow Intersection Point

Line touches/intersecting at Right Boundary

$\therefore x = x_{max} = 7$

$y = y_1 + m(x_{max} - x_1)$

Where $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 2}{9 - 5} = \frac{4}{4} = 1 = m$

$\therefore y = 2 + 1(7 - 5)$
 $y = 4$

Ans:- (7,4)