

clipping

CG

Clipping?

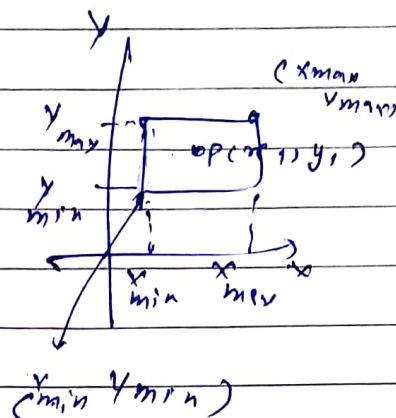
In 2D
ch=1
ch=2
ch=3 till 10

Point clipping

cond. 1

$x \geq x_{min}$
 $x \leq x_{max}$
 $y \geq y_{min}$
 $y \leq y_{max}$

kept accepted
 otherwise reject clip



line clipping

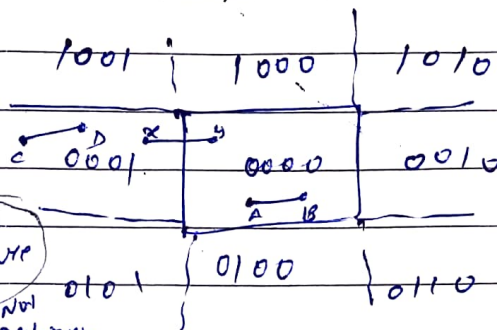
TBRL

Accept
line inside

Reject
line outside

$A = 0000$
 $B = 0000$

Both the codes are zero AND is not performing



AND

0001
 0001
 0001

Logical AND

outside

Not all zero

(iii)

$x = 0001$

$y = 0000$

0000
 0000

After AND
all zero

partially inside
inside

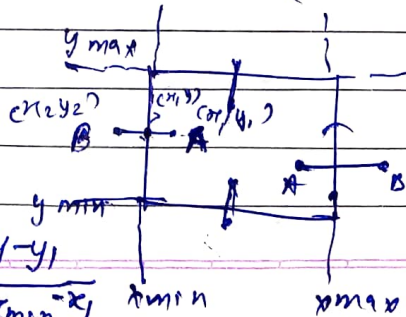
VIP

cohen-sutherland line clipping algo -

(i) left Boundary -

$x = x_{min}$

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



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

Accept +
 Reject
 endpoint

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

Right boundary

$$x = x_{max}$$

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

Top

$$y = y_{max}$$

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

$$= \frac{y_{max} - y_1}{x - x_1}$$

(x, y)

3rd

dir

Point

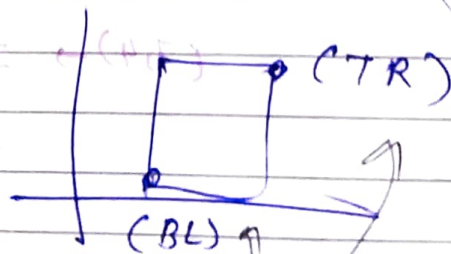
$$x = x_1 + \frac{(y_{max} - y_1)(x - x_1)}{m}$$

(4) Bottom

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

2

Plot your line
in a graph



given

A(2, 5)
B(7, 8)

1) corner

2) PAV

haga.

weger

wirte

help of

x max

x min

y min

y max

1

2

3

Security

Two alternatives

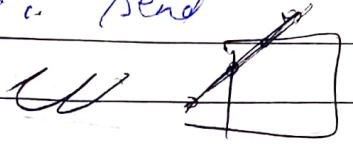
- inspect the headers
- analyse the traffic.

PPR → packet delivery ratio

→ no. of message received

promiscuous mode

no. of send



Partial Inside
&
II Outside

BL = (1,1) x_1

UR = (7,8)

AB → A(5,2)

B(9,6)

x_2, y_2

Right

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

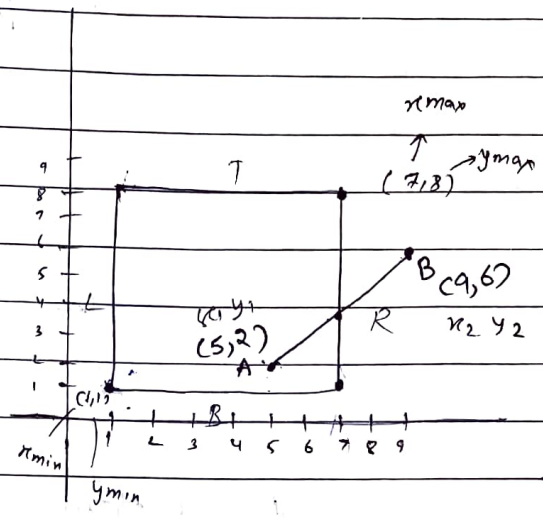
$$y = \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$$

$$y = 2 \quad 1 \quad 7 \quad 5$$

$$y = 2 + 1(7-5)$$

$$y = 2 + 1(2)$$

$$y = 2 + 2 = \boxed{4}$$



$$\frac{6-2}{9-5} = \frac{y}{4} = 1$$

$$m = 1$$

(x_2, y_2)

inside values.

2 video
down loads
1 time

(7,4) → intersection point

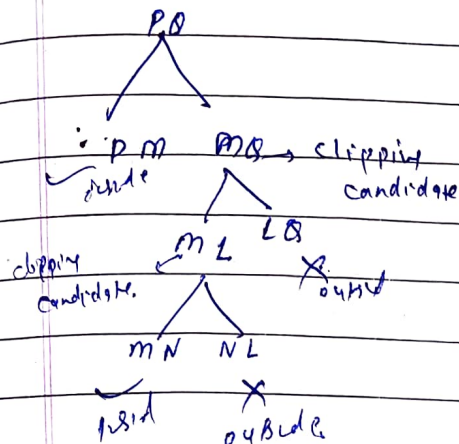
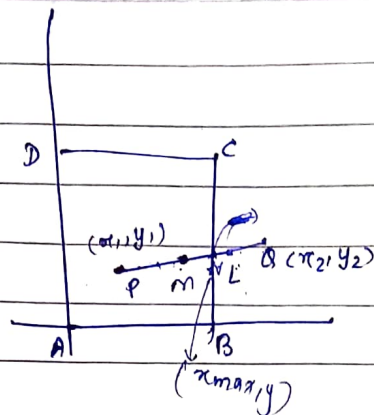
CG

TBRL

$Q \rightarrow 0010$

0000

Partially inside
" outside.



example -

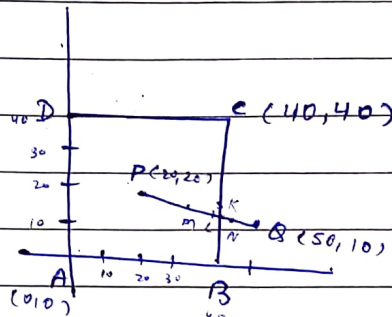
$P(20, 20)$

 $Q(50, 10)$

$p \rightarrow 0000$

$g \rightarrow 0010$

0000 Partially inside
H. B. H. B.



mid point of $PQ, m = \left(\frac{20+50}{2}, \frac{20+10}{2} \right) \Rightarrow m = (35, 15)$

$m_P \text{ of } m_Q \rightarrow$

$$N = \left(\frac{35 + 50}{2}, \frac{15 + 19}{2} \right)$$

x_{max} : inside

MP of MN, $\leftarrow = \left(\frac{35+43}{2}, 15+13 \right) = (43, 13)$
 $\rightarrow F_{\max}$

mpy LN, $R = \left(\frac{39+43}{2}, 14+15 \right)$ \downarrow $\leq \pi_{\max}$

mp of $21 <$, $S = \left(\frac{39+41}{2}, \frac{14+13}{2} \right)$ $\Rightarrow (41, 13.5)$ $\rightarrow \pi_{\max}$ $\frac{13}{2}$

$$(40, 13)$$

is no
boundary
we have to stop now

$$\text{distance b/w } P_s = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$= \sqrt{(20 - 40)^2 + (20 - 13)^2}$$

$$= 19$$

Answer back
time consuming
lot of calculation

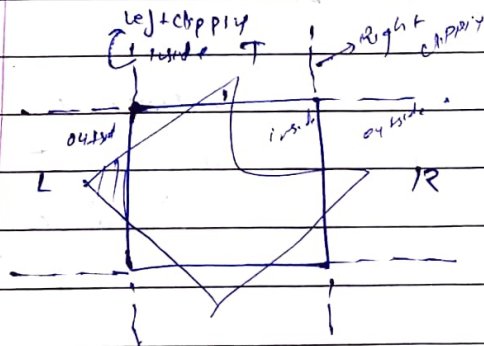
2 NOV 2022

Polygon Clipping

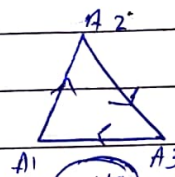
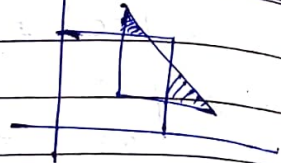
steps for polygon clipping -

1. Input Polygon values
2. Left clipping
3. Right "
4. Bottom "
5. Top "
6. Clipped polygon

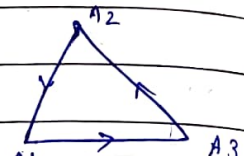
LRBT



Sutherland Hodgeman algo.



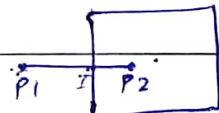
A1 A2 A3



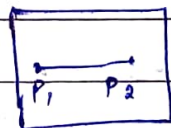
A1 A3 A2

Rules to find intersection point -

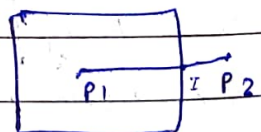
1) Out-In
state - I, P2



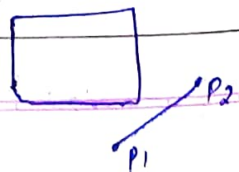
2) In-In
state - P2



3) In-Out
state - I



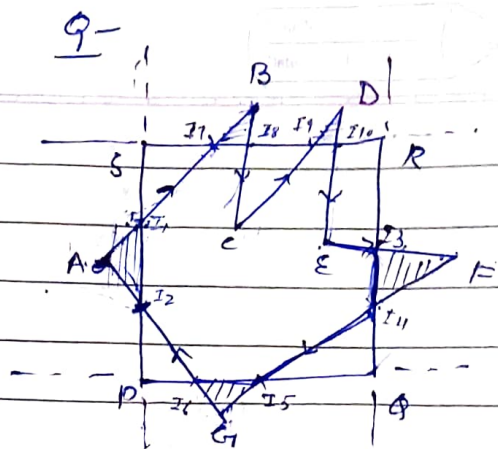
4) Out-Out
state - Nothing



example-

Ans- ① Orientation - clockwise

②	Left Ch.	Right	Bottom
AB	$AB \rightarrow I_1 B$	$I_1 B \rightarrow B$	$I_1 B \rightarrow B$
BC	$BC \rightarrow C$	$BC \rightarrow C$	$BC \rightarrow C$
CD	$CD \rightarrow D$	$CD \rightarrow D$	$CD \rightarrow D$
DE	$DE \rightarrow E$	$DE \rightarrow E$	$DE \rightarrow E$
EF	$EF \rightarrow F$	$EF \rightarrow I_3$	$EF I_3 \rightarrow I_3$
FG	$FG \rightarrow G$	$FG \rightarrow I_4 G$	$I_3 I_4 \rightarrow I_4$
GA	$GA \rightarrow I_2$	$GI_2 \rightarrow I_2$	$I_4 G \rightarrow I_5$
			$G I_2 \rightarrow I_6 I_2$
			$I_2 I_5 \rightarrow I_1$



ques. in exam

asked in two ways-

- values are given
- " not given

then we have
to find T using
cogn. line
also.

Top

$$\Gamma_1 B \rightarrow \Gamma_7$$

BC → TC

CO² Iq

$$DE \rightarrow I, O, E$$
$$EI_3 \quad I_3$$
$$I_3 I_4 \rightarrow I_4$$
$$I_4 I_5 = I_5$$

ISI 6-16

$$I_1 I_2 \rightarrow I_2$$
$$I_2 I_1 \rightarrow I_1$$

clipped polygon

Text clipping

1) All or none string

2) " " " character

अगर पूरा चर माने है

~~display error~~

3) Text clipping



31 JUNE 1981

AB CDE

chipper accepted

A B C D E

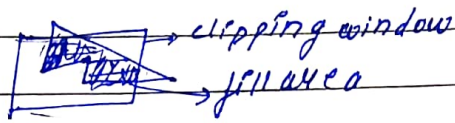
ABC

accepted

Rejected

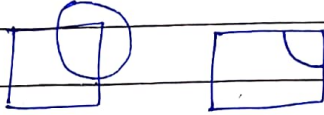
A B C ✓ on hand

~~XXXXXX~~



curve clipping →

→ No. algo. only theorem



2D clipping complete →

3D clipping

→