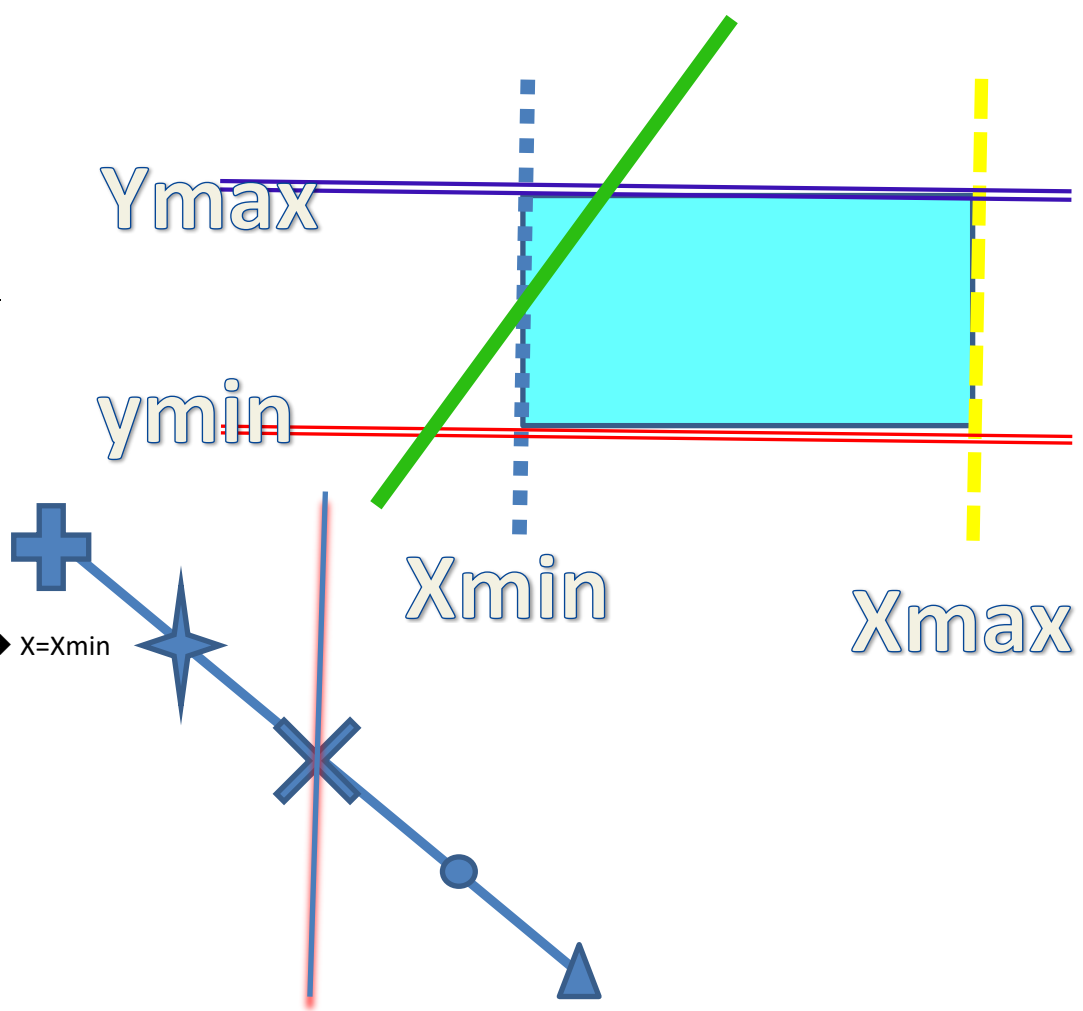


$$M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{y_1 - y_2}{x_1 - x_2}$$

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

If left side $X < x_{min} \rightarrow X = x_{min}$

$$M = \frac{y - y_1}{x - x_1}$$



Window area { (50,-50)- (-20,30)

L(60,-10)- (100,-90), M(-10,-60)- (10,90)

Sol// $-20 \leq x \leq 50$ |||| $-50 \leq y \leq 30$

(60, -10) \rightarrow 0010

xmin	ymin	xmax	ymax
------	------	------	------

(100,-90) \rightarrow 0110

0010 and 0110 \rightarrow 0010

0010 or 0110 \rightarrow 0110 invisible not need clipping

note

Visible $\rightarrow x_1, x_2 \geq x_{min}$ AND $x_1, x_2 \leq x_{max}$ AND $y_1, y_2 \geq y_{min}$ AND $y_1, y_2 \leq y_{max}$

$\rightarrow P_1$ AND $P_2 = 0000$ WITH P_1 OR $P_2 = 0000 \Rightarrow$ Visible

Invisible $\rightarrow x_1, x_2 < x_{min}$ OR $x_1, x_2 > x_{max}$ OR $y_1, y_2 < y_{min}$ OR $y_1, y_2 > y_{max}$

$\rightarrow P_1$ AND $P_2 \neq 0000$ WITH P_1 OR $P_2 \neq 0000 \Rightarrow$ invisible

M(-10,-60)- (10,90) \rightarrow (0100) – (0001)

(0100) AND (0001) = 0000 With (0100) OR (0001) = 0101 line m needs clipping (Detection)

$$M = \frac{-60-90}{-10-10} = \frac{15}{2} \rightarrow -10i-60j \rightarrow \text{Down } Y=Y_{\min} \rightarrow Y = -50$$

$$\frac{15}{2} = \frac{y-y_1}{x-x_1} \rightarrow \frac{15}{2} = \frac{-50+60}{x+10} \rightarrow \frac{15}{2} = \frac{10}{x+10} \rightarrow x+10 = \frac{20}{15} \rightarrow X = \frac{20}{15} - 10 \rightarrow X = \frac{4}{3} - \frac{30}{3} = -26/3 = -8.66666$$

$$10i+90j \rightarrow \text{up} \rightarrow Y=Y_{\max} \rightarrow y=30 \rightarrow \frac{15}{2} = \frac{y-y_1}{x-x_1} \rightarrow \frac{15}{2} = \frac{30-90}{x-10} \rightarrow \frac{15}{2} = \frac{-60}{x-10} \rightarrow x-10 = \frac{-120}{15} = 2$$

$$-20 \leq x \leq 50 \quad \& \& \& \rightarrow -50 \leq y \leq 30$$

$$F(-40,-60)-(10,70) \rightarrow (1100) - (0001)$$

(1100) AND (0001) = 0000 with (1100) OR (0001) = 1101 line F needs clipping (Detection)

$$M = (-60-70)/(-40-10) = 13/5$$

$$(10,70) \rightarrow \text{up} \rightarrow Y=Y_{\max} = 30 \rightarrow \frac{13}{5} = \frac{30-70}{x-10} \rightarrow x = \frac{-200}{13} + 10 \rightarrow \frac{-200}{13} + \frac{130}{13} \rightarrow x = \frac{-70}{13} \rightarrow X \approx -5.384$$

Intersection point in up-side is (-5.384, 30) because it is point visible

(-40,-60) left or down

If suppose down then $Y=y_{\min} \rightarrow Y = -50$

$$\frac{13}{5} = \frac{-50+60}{x+40} \rightarrow x = \frac{50}{13} - 40 = \frac{50}{13} - \frac{520}{13} = \frac{-470}{13} \rightarrow X \approx -36.1538 \rightarrow X < X_{\min} \text{ (Discard) } \text{بہل}$$

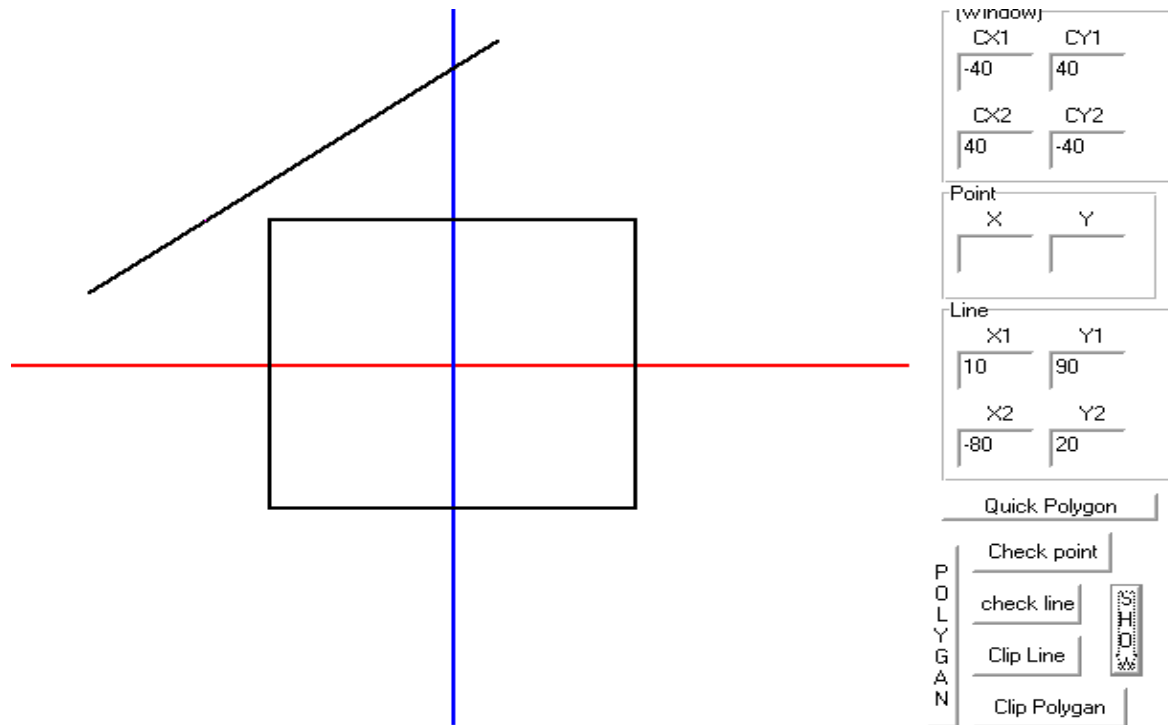
Because $-20 \leq x \leq 50$ and intersection(-36.1538, -50) is not Visible (Suppose Down Discard)

If suppose is left then $x=x_{\min} \rightarrow X = -20$

$$\frac{13}{5} = \frac{y+60}{-20+40} \rightarrow y = \frac{260}{5} - 60 = 52 - 60 = -8 \rightarrow y = -8$$

Intersection point in Left-side is (-20, -8) because it is Visible

Clipping Fake قص الكاذب



Area Drawing { (-40,40)-(-40,-40)} Clip Line (10,90)-(-80,20)?

Sol// $-40 \leq X \leq 40$, $-40 \leq Y \leq 40 \rightarrow (10,90) \rightarrow 0001$ Up, $(-80,20) \rightarrow 1000$ Left

$[0001 \text{ AND } 1000 = 0000]$, $[0001 \text{ OR } 1000 = 1001] \rightarrow$ therefore, it Need Clipping

Find Section Points Line with Area Drawing

\rightarrow That leaves you.