

Example: -

i) Consider a line from (0,1) to (4,3). Draw using DDA Algorithm.

$$(x_0, y_0) = (0, 1) \quad (x_1, y_1) = (4, 3)$$

$$m = \frac{3-1}{4-0} = \frac{2}{4} = 0.5$$

since $|m| < 1$

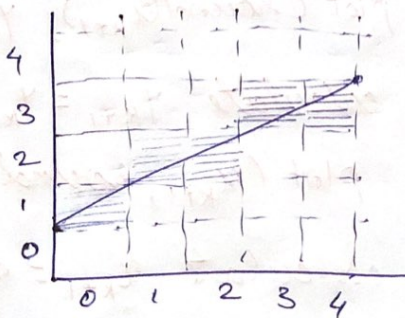
case 1 is applicable

hence $\Delta x = 1$

Successive y-coordinates will be calculated as

$$y_{k+1} = y_k + m$$

x_{k+1}	y_{k+1}	x_{plot}	y_{plot}
0	1	0	1
1	1.5	1	2
2	2	2	2
3	2.5	3	3
4	3	4	3



2) Consider a line from $(0,0)$ to $(5,5)$ Draw using DDA Algorithm.

$$(x_0, y_0) = (0, 0) \quad (x_1, y_1) = (5, 5)$$

$$m = \frac{5-0}{5-0} = \frac{5}{5} = 1$$

Since $|m| \leq 1$

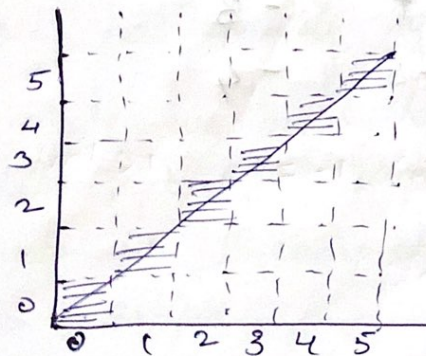
case 1 is applicable

hence $\Delta x = 1$

Successive y co-ordinate values will be calculated as

$$y_{k+1} = y_k + m$$

x_{k+1}	y_{k+1}	x_{plot}	y_{plot}
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5



3) Consider a line from $(0,0)$ to $(-8,-4)$.
Draw using DDA Algorithm.

$$(x_0, y_0) = (0, 0) \quad (x_1, y_1) = (-8, -4)$$

$$m = \frac{-4 - 0}{-8 - 0} = 0.5$$

Since $|m| \leq 0.5$

we have to draw line from right to left
endpoint hence case 3 is applicable

$$\Delta x = -1$$

Successive y co-ordinate values will be
calculated as

$$y_{k+1} = y_k - m$$

x_{k+1}	y_{k+1}	x_{plot}	y_{plot}
0	0	0	0
-1	-0.5	-1	0
-2	-1	-2	-1
-3	-1.5	-3	-1
-4	-2	-4	-2
-5	-2.5	-5	-2
-6	-3	-6	-3
-7	-3.5	-7	-3
-8	-4	-8	-4