Abdel Rahman Adel Abdel Fattah 1701229 NOTES

Sheet 2

(1) L line segment, $P_1 = (16, 13)$, $m = 3/8$
$P_2 = (8, 10)$, $c = ?$

$$y = \frac{3}{8}m + ?$$

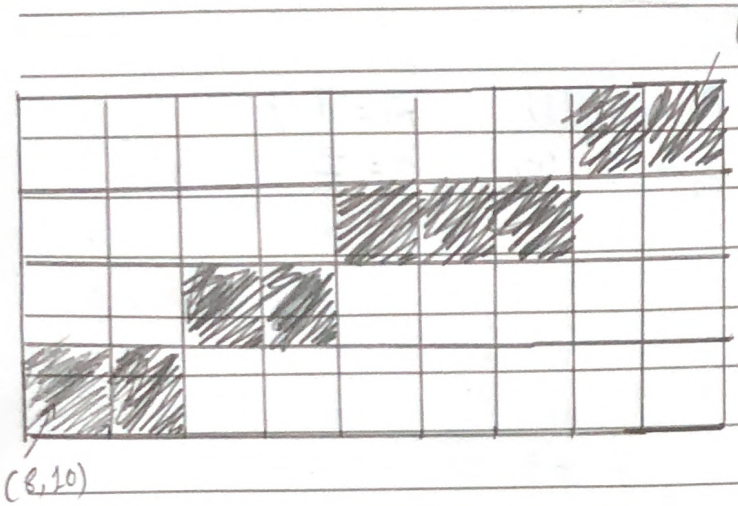
$x_1 = 16$ $y_1 = 13$
$x_2 = 8$ $y_2 = 10$

a) $dx = x_2 - x_1$ | $dy = y_2 - y_1$
$dx = -8$ | $dy = -3$

$Steps = Max(ABS(dx), ABS(dy))$
$steps = 8$

$$x_{inc} = \frac{dx}{steps} = -1$$
$$y_{inc} = \frac{dy}{steps} = -3/8$$

K	x_k	y_k	y_{k+1}
0	8	10	10.375
1	9	10.375	10.75
2	10	10.75	11.125
3	11	11.125	11.5
4	12	11.5	11.875
5	13	11.875	12.25
6	14	12.25	12.625
7	15	12.625	13
8	16	13	13.375



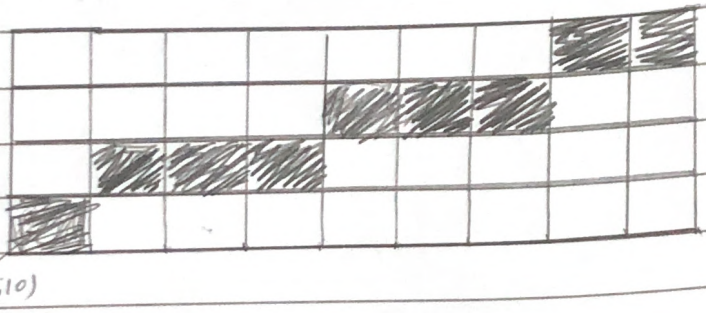
b) $y = \frac{3}{8}x + *$

$P_2 = (16, 13)$

$P_1 = (8, 10)$

$dx = 8$

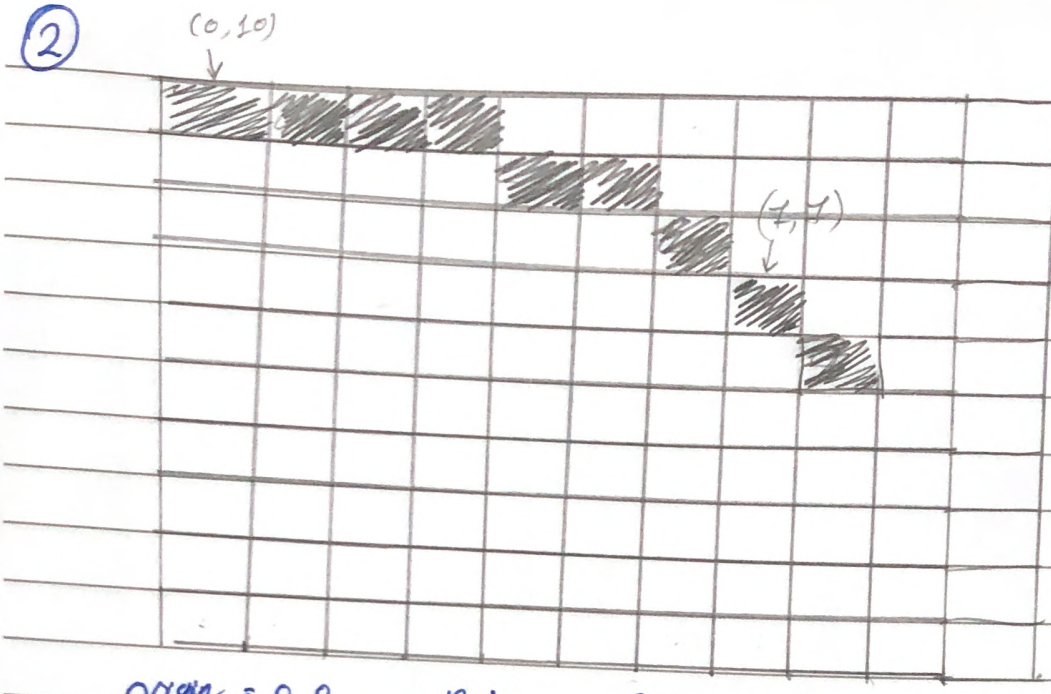
$dy = 3$



$dx \geq 0 \rightarrow$ Case (1) $0 < m < 1$

Count	x	y	error
0	8	10	0
1	9	11	-5
2	10	11	-2
3	11	11	1
4	12	12	-4
5	13	12	-1
6	14	12	2
7	15	13	-3
8	16	13	0

(2)



origin = 0,0 , $r = 10$ $x_0 = 0$, $y = r = 10$

$p_0 = 1 - r = -9$

K	p_k	x_k	y_k	x_{k+1}	y_{k+1}	move
0	-9	0	10	1	10	E
1	-6	1	10	2	10	E
2	-1	2	10	3	10	E
3	6	3	10	4	9	SE
4	-3	4	9	5	9	E
5	8	5	9	6	8	SE
6	5	6	8	7	7	SE
7	6	7	7	8	6	SE