Assignment 1

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Section: 02

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1 No ans

Here,

$x_1 = 9, y_1 = 18$

$x_2 = 14, y_2 = 22$

Now,

$\Delta x = 14 - 9 = 5$

$\Delta y = 22 - 18 = 4$

$\therefore m = \frac{4}{5} = 0.8$

$2\Delta y = 2 \times 4 = 8$

$(2\Delta y - 2\Delta x) = 8 - 2 \times 5$

$= -2$

plot the 1st point $(x_1, y_1) = 9, 18$

$\therefore P_0 = 2\Delta y - \Delta x = 8 - 5 = 3$

K	P_k	x_{k+1}, y_{k+1}
0	3	10, 19
1	1	11, 20
2	-1	12, 20
3	7	13, 21
4	5	14, 22

Here,

$P_k = 3$ For $P_k > 0$, $P_{0+1} = 3 + (-2) = 1 \Rightarrow (11, 20)$

$P_k = 1$ For $P_k > 0$, $P_{1+1} = 1 - 2 = -1 \Rightarrow (12, 20)$

$P_k = -1$ For $P_k < 0$, $P_{2+1} = -1 + 8 = 7 \Rightarrow (13, 21)$

$P_k = 7$ For $P_k > 0$, $P_{3+1} = 7 - 2 = 5 \Rightarrow (14, 22)$

2 No Ans.

Here,

$x_1 = 1, y_1 = 1$

$x_2 = 8, y_2 = 7$

Now, $m = \frac{\Delta y}{\Delta x} = \frac{7-1}{8-1} = 0.8$

k	x	y	R(x)	R(y)
0	1	1	1	1
1	2	1.8	2	2
2	3	2.6	3	3
3	4	3.4	4	3
4	5	4.2	5	4
5	6	5	6	5
6	7	5.8	7	6
7	8	6.6	8	7

Here,

$\therefore m = 0.8 < 1$, $x = x+1$, $y = y+m$

Now,

~~For x = 1 For~~

For $x=1 \Rightarrow x = 1+1 = 2$, $y = 1 \Rightarrow y = 1+0.8 = 1.8$

For $x=2 \Rightarrow x = 2+1 = 3$, $y = 1.8 \Rightarrow y = 1.8+0.8 = 2.6$

For $x=3 \Rightarrow x = 3+1 = 4$, $y = 2.6 \Rightarrow y = 2.6+0.8 = 3.4$

For $x=4 \Rightarrow x = 4+1 = 5$, $y = 3.4 \Rightarrow y = 3.4+0.8 = 4.2$

For $x=5 \Rightarrow x = 5+1 = 6$, $y = 4.2 \Rightarrow y = 4.2+0.8 = 5$

For $x=6 \Rightarrow x = 6+1 = 7$, $y = 5 \Rightarrow y = 5+0.8 = 5.8$

For $x=7 \Rightarrow x = 7+1 = 8$, $y = 5.8 \Rightarrow y = 5.8+0.8 = 6.6$

3 No Ans

Here, $r = 8$

$(x_0, y_0) = (0, 8)$

We know,

$$P_0 = 1 - r$$
$$= 1 - 8$$
$$= -7$$

Now,

For $P_0 < 0$ and the next point $(1, 8)$

$$P_1 = P_0 + 2x_{k+1} + 1$$
$$= -7 + 2 + 1 = -4$$

For $P_1 < 0$ and the next point $(2, 8)$

$$P_2 = -4 + 4 + 1 = 1$$

For $P_2 > 0$ and the next point $(3, 7)$

$$P_3 = 1 + 6 + 1 - 16 = -6$$

For $P_3 < 0$ and the next point $(4, 7)$

$$P_4 = -6 + 8 + 1 = 3$$

For $P_4 > 0$ and the next point $(5, 6)$

$$P_5 = 8 + 10 + 1 - 12 = 2$$

For P_5 and the next point (6, 5)

$\therefore$ x is greater y

K	P_K	x_{K+1}, y_{K+1}	$2(x_{K+1})$	$2(y_{K+1})$
0	−7	(1, 8)	2	16
1	−4	(2, 8)	4	16
2	1	(3, 7)	6	14
3	−6	(4, 7)	8	14
4	3	(5, 6)	10	12
5	2	(6, 5)	12	10