

Sub: _____

Day _____

Time: _____

Date: / /

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*Incremental Algorithm:

Start point (3,13), End point (13,18)

$$m = \frac{18-13}{13-3} = \frac{5}{10} = 0.5$$

Here, $m < 1$

X _{old}	Y _{old}	X _{new}	Y _{new}
3	13	4	14
4	14	5	14
5	14	6	15
6	15	7	15
7	15	8	16
8	16	9	16
9	16	10	17
10	17	11	17
11	17	12	18
12	18	13	18

$$13 + 0.5 = 13.5$$

$$13.5 + 0.5 = 14$$

$$14 + 0.5 = 14.5$$

$$14.5 + 0.5 = 15$$

$$15 + 0.5 = 15.5$$

$$15.5 + 0.5 = 16$$

$$16 + 0.5 = 16.5$$

$$16.5 + 0.5 = 17$$

$$17 + 0.5 = 17.5$$

$$17.5 + 0.5 = 18$$

* Mid Point Line Algorithm:

Start point (3,13), End point (13,18)

$$\Delta x = 13 - 3 = 10$$

$$\Delta y = 18 - 13 = 5$$

$$\therefore m = \frac{\Delta y}{\Delta x} = \frac{5}{10} = 0.5$$

Here, $m < 1$

$$P_k = 2\Delta y - \Delta x = 2 \times 5 - 10 = 0$$

Here, $P_k < 1$

x_k, y_k	P_k	x_{k+1}, y_{k+1}
3, 13	0	4, 14
4, 14	-10	5, 14
5, 14	0	6, 15
6, 15	-10	7, 15
7, 15	0	8, 16
8, 16	-10	9, 16
9, 16	0	10, 17
10, 17	-10	11, 17
11, 17	0	12, 18
12, 18	-10	13, 18

$$P_{k+1} = 0 + 10 - 20(14 - 13)$$

$$= -10$$

$$P_{k+1} = -10 + 10 - 20(15 - 14)$$

$$= 0$$

$$P_{k+1} = 0 + 10 - 20(16 - 15)$$

$$= -10$$

$$P_{k+1} = -10 + 10 - 20(17 - 16)$$

$$= 0$$

$$P_{k+1} = 0 + 10 - 20(18 - 17)$$