Bresenham's Line Drawing Algorithm Quick Reference

1. For |m| < 1 i.e. |dy| < |dx|

X_{k+1}=Increment or decrement by 1

Y_{k+1}= According to decision parameter (P_k) looped till |dx|.

P_0= 2×|dy| - |dx|

Case	Condition		X_{k+1}	If $P_K < 0$ $P_{k+1}=P_k + 2\times\|dy\|$	Else ($P_K >= 0$) $P_{k+1}=P_k + 2\times\|dy\| - 2\times\|dx\|$	Example Coordinate
	dx	dy		Y_{k+1}	Y_{k+1}	
I	Positive (+ve)	Positive (+ve)	X_k+1	Y_k	Y_k+1	(10, 10) and (18, 17)
II		Negative (-ve)			Y_k-1	(10, 10) and (14, 7)
III	Negative (-ve)	Positive (+ve)	X_k-1		Y_k+1	(10, 10) and (6, 13)
IV		Negative (-ve)			Y_k-1	(10, 10) and (6, 7)

2. For |m| > 1 i.e. |dy| > |dx|

X_{k+1}= According to decision parameter (P_k) looped till |dy|.

Y_{k+1}= Increment or decrement by 1

P_0= 2×|dx| - |dy|

Case	Condition		If $P_K < 0$ $P_{k+1}=P_k + 2×\|dx\|$	Else ($P_K >= 0$) $P_{k+1}=P_k + 2×\|dx\| - 2×\|dy\|$	Y_{k+1}	Example Coordinate
	dx	dy	X_{k+1}	X_{k+1}		
I	Positive (+ve)	Positive (+ve)	X_k	X_k+1	Y_k+1	(10, 10) and (16, 17)
II	Negative (-ve)			X_k-1		(10, 10) and (4, 17)
III	Positive (+ve)	Negative (-ve)		X_k+1	Y_k-1	(6, 12) and (10, 5)
IV	Negative (-ve)			X_k-1		(10, 10) and (7, 5)