DDA example

A(3,2) X1=3, Y1=2

B(10,8) X2=10, Y2=8

DX = X2 – X1 = 10 – 3 = 7

DY = Y2 – Y1 = 8 – 2 = 6

HERE DX > DY

So STEP = DX = 7

XINC = DX / STEP = 7 / 7 =1

YINC = DY /STEP = 6 / 7 = 0.85

PLOT A(3, 2)

ITERATION 1:

Xnew = Xold + Xinc = 3 + 1 = 4

Ynew = Yold + Yinc = 2 + 0.85 = 2.85 ~ 3

PLOT(4,3)

ITERATION 2:

Xnew = Xold + Xinc = 4 + 1 =5

Ynew = Yold + Yinc = 2.85 + 0.85 = 3.7 ~ 4

PLOT(5,4)

ITERATION 3:

Xnew = Xold + Xinc = 5 + 1 = 6

Ynew = Yold + Yinc = 3.7 + 0.85 = 4.55 ~ 5

PLOT(6,5)

ITERATION 4:

Xnew = Xold + Xinc = 6 + 1 = 7

Ynew = Yold + Yinc = 4.55 + 0.85 = 5.4 ~ 5

PLOT(7,5)

ITERATION 5:

Xnew = Xold + Xinc = 7 + 1 = 8

Ynew = Yold + Yinc = 5.4 + 0.85 = 6.25 ~ 6

PLOT(8,6)

ITERATION 6:

Xnew = Xold + Xinc = 8 + 1 = 9

Ynew = Yold + Yinc = 6.25 + 0.85 = 7.1 ~ 7

PLOT(9,7)

ITERATION 7:

Xnew = Xold + Xinc = 9 + 1 = 10

Ynew = Yold + Yinc = 7.1 + 0.85 = 7.95 ~ 8

PLOT(10,8)

So, destination point reached. Here we stop the algorithm.

|  |  |  |
| --- | --- | --- |
| X | Y | Plot(X,Y) |
| 3 | 2 | (3,2) |
| 4 | 2.85 | (4,3) |
| 5 | 3.7 | (5,4) |
| 6 | 4.55 | (6,5) |
| 7 | 5.4 | (7,5) |
| 8 | 6.25 | (8,6) |
| 9 | 7.1 | (9,7) |
| 10 | 7.95 | (10,8) |

Example 2:

A(5,8)= (x1,y1)

B(9,14) = (x2,y2)

Dx = |x2 – x1 |= |9 – 5 | = 4

Dy = | y2 – y1 | = | 14 – 8 | = 6

HERE Dy > Dx

So STEP = Dy = 6

XINC = Dx / STEP = 4 / 6 = 0.67

YINC = Dy / STEP = 6 / 6 = 1

PLOT A(5, 8)

ITERATION 1:

Xnew = Xold + Xinc = 5 + 0.67 = 5.67 ~ 6

Ynew = Yold + Yinc = 8 + 1 = 9

Plot (6, 9)

ITERATION 2:

Xnew = Xold + Xinc = 5.67 + 0.67 = 6.34 ~ 6

Ynew = Yold + Yinc = 9 + 1 = 10

Plot (6, 10)

ITERATION 3:

Xnew = Xold + Xinc = 6.34 + 0.67 = 7.01 ~ 7

Ynew = Yold + Yinc = 10 + 1 = 11

Plot (7, 11)

ITERATION 4:

Xnew = Xold + Xinc = 7.01 + 0.67 = 7.68 ~ 8

Ynew = Yold + Yinc = 11 + 1 = 12

Plot (8, 12)

ITERATION 5:

Xnew = Xold + Xinc = 7.68 + 0.67 = 8.35 ~ 8

Ynew = Yold + Yinc = 12 + 1 = 13

Plot (8, 13)

ITERATION 6:

Xnew = Xold + Xinc = 8.35 + 0.67 = 9.01 ~ 9

Ynew = Yold + Yinc = 13 + 1 = 14

Plot (9, 14)

So, destination point reached. Here we stop the algorithm.

|  |  |  |
| --- | --- | --- |
| X | Y | Plot(X,Y) |
| 5 | 8 | (5,8) |
| 5.67 | 9 | (6,9) |
| 6.34 | 10 | (6,10) |
| 7.01 | 11 | (7,11) |
| 7.68 | 12 | (8,12) |
| 8.35 | 13 | (8,13) |
| 9.01 | 14 | (9,14) |