

Ex We use the simple DDA algorithm to a line with starting point (2,2) and ending point (6,7) on a fixed based display.

$$\text{Slope, } m = \frac{7-2}{6-2} = \frac{5}{4} = 1.25$$

$$m = \frac{1}{m} = \frac{1}{1.25} = 0.8$$

Now, $y=2$

$$y = 2 + 1 \quad [\because y = y + 1]$$

$$= 3$$

$$y = 3 + 1$$

$$= 4$$

$$y = 4 + 1$$

$$= 5$$

$$y = 5 + 1$$

$$= 6$$

$$y = 6 + 1$$

$$= 7$$

$$x = 2$$

$$x = 2 + 0.8 \quad [x = x + m]$$

$$= 2.8$$

$$= 3$$

$$x = 2.8 + 0.8$$

$$= 3.6$$

$$= 4$$

$$x = 3.6 + 0.8 = 4.4$$

$$x = 4.4 + 0.8 = 5.2 = 5$$

$$x = 5.2 + 0.8 = 6$$

Draw a line with starting point $(2, 0)$ and ending point $(7, 4)$ on a pixel based

Now,

$$m = \frac{4-0}{7-2} = \frac{4}{5} = 0.8$$

$$x_1 = 2$$

$$y_1 = 0$$

$$x_2 = 2 + 1$$

$$y_2 = 0 + 0.8 = 0.8 = 1$$

$$x_3 = 3$$

$$y_3 = 0.8 + 0.8 = 1.6 = 2$$

$$x_4 = 4$$

$$y_4 = 1.6 + 0.8 = 2.4 = 2$$

$$x_5 = 5$$

$$y_5 = 2.4 + 0.8 = 3.2 = 3$$

$$x_6 = 6$$

$$y_6 = 3.2 + 0.8 = 4$$

$$x_7 = 7$$

17 The endpoints of given line are $(0,0)$ and $(6,18)$
compute each value of y as x steps from 0 to 6
and plot the result.

$$m = \frac{18-0}{6-0} = \frac{18}{6} = 3$$

$$\text{and, } b = y_{\text{start}} - m \cdot x_{\text{start}}$$

$$= 0 - 3 \cdot 0$$

$$= 0$$

$$1\text{st step, } x = 0;$$

$$y = 0$$

$$\begin{aligned} 2\text{nd step, } x &= 0+1; \\ &= 1 \end{aligned}$$

$$\begin{aligned} y &= 3 \cdot 1 + 0 \\ &= 3 \end{aligned}$$

$$\begin{aligned} 3\text{rd step, } x &= 1+1; \\ &= 2 \end{aligned}$$

$$\begin{aligned} y &= 3 \cdot 2 + 0 \\ &= 6 \end{aligned}$$

$$\begin{aligned} 4\text{th step, } x &= 2+1; \\ &= 3 \end{aligned}$$

$$\begin{aligned} y &= 3 \cdot 3 + 0 \\ &= 9 \end{aligned}$$

$$\begin{aligned} 5\text{th step, } x &= 3+1; \\ &= 4 \end{aligned}$$

$$\begin{aligned} y &= 3 \cdot 4 + 0 \\ &= 12 \end{aligned}$$

$$\begin{aligned} 6\text{th step, } x &= 4+1; \\ &= 5 \end{aligned}$$

$$\begin{aligned} y &= 3 \cdot 5 + 0 \\ &= 15 \end{aligned}$$

$$\begin{aligned} 7\text{th step, } x &= 5+1 \\ &= 6 \end{aligned}$$

$$\begin{aligned} y &= 3 \cdot 6 + 0 \\ &= 18 \end{aligned}$$