

# Bresenham's Line Drawing Algorithm

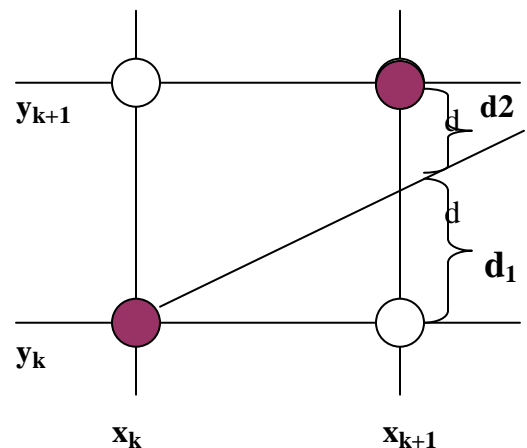
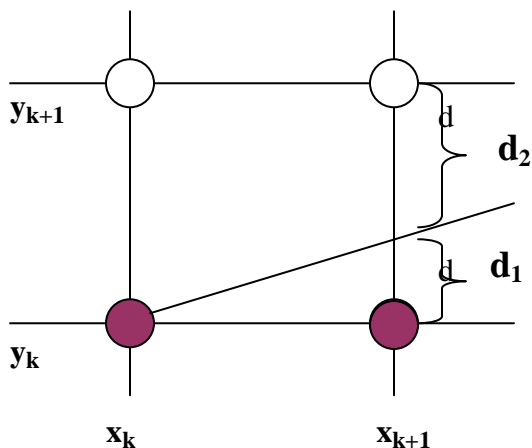
Accurate and easier line drawing algorithm by Bresenham

Vertical axis: *scan line*

Horizontal axis: *pixel column*

For slope  $< 1$  sample at unit ' $x$ ' interval in ' $x$ ' direction, determine which of the two possible pixel positions is closer to the line path at each sample step.

Bresenham's algorithm gives the solution to this problem by testing the sign of the integer parameter whose value is proportional to difference between the separation of two pixel positions from actual line path.



$(x_k, y_k)$  plotted next to plot  $(x_{k+1}, y_k)$  or  $(x_{k+1}, y_{k+1})$