Bresenham's Line Drawing Algorithm

Step 1: Start.

Step 2: Declare variables x_1, y_1, x_2, y_2, label x, label y, Δx, Δy, P, x, and y.

Step 3: Calculate

$\Delta x = | x_2 - x_1 |$
$\Delta y = | y_2 - y_1 |$

Step 4: If $x_2 > x_1$, assign label x = 1, else label x = -1

Step 5: If $y_2 > y_1$, assign label y = 1, else label y = -1

Step 6: Plot x_1, y_1

Step 7: If $\Delta x > \Delta y$, $P_o = 2\Delta y - \Delta x$

If ($P_k < 0$) then
$x_{k+1} = x_k$ + label x
$y_{k+1} = y_k$
$P_{k+1} = P_k + 2\Delta y$
Else ($P_k > 0$) then
$x_{k+1} = x_k$ + label x
$y_{k+1} = y_k$ + label y
$P_{k+1} = P_k + 2\Delta y - 2\Delta x$

Else $\Delta x < \Delta y$, $P_o = 2\Delta x - \Delta y$

If ($P_k < 0$) then
$x_{k+1} = x_k$
$y_{k+1} = y_k$ + label y
$P_{k+1} = P_k + 2\Delta x$
Else ($P_k > 0$) then
$x_{k+1} = x_k$ + label x
$y_{k+1} = y_k$ + label y
$P_{k+1} = P_k + 2\Delta x - 2\Delta y$

Plot (x_{k+1}, y_{k+1})

Step 8: Stop