Computer Graphics: Assignment 06

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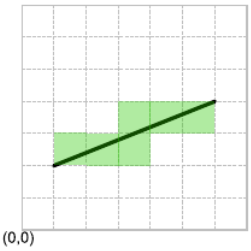
6.1 Bresenham Algorithm

1. Rasterization
   - First line initialization:

$$x_0 = 2 \qquad x_1 = 6$$
$$y_0 = 3 \qquad y_1 = 4$$
$$x = 2 \qquad y = 3$$
$$d = F(3, 3.5) = 3.5 \cdot 4 + 3 \cdot (-1) + 8 - 18 = 1$$

   1. color pixel $(x, y) = (2, 3)$
      $d = 1 \geq 0 \Rightarrow E \rightarrow x = x + 1 = 3,\ y = y = 3,\ d = d - 1 = 0$
   2. color pixel $(x, y) = (3, 3)$
      $d = 0 \geq 0 \Rightarrow E \rightarrow x = x + 1 = 4,\ y = y = 3,\ d = d - 1 = -1$
   3. color pixel $(x, y) = (4, 3)$
      $d = -1 < 0 \Rightarrow NE \rightarrow x = x + 1 = 5,\ y = y + 1 = 4,\ d = d + 3 = 2$
   4. color pixel $(x, y) = (5, 4)$
      $d = 2 \geq 0 \Rightarrow E \rightarrow x = x + 1 = 6,\ y = y = 4,\ d = d - 1 = 1$
   5. color pixel $(x, y) = (6, 4)$
      $d = 1 \geq 0 \Rightarrow E \rightarrow x = x + 1 = 7,\ y = y = 4,\ d = d - 1 = 0$



   - Second line initialization, remember to switch x and y in the formulas:

2. Antialiasing