Line Rasterization

1. Transformation

a. Transform (-3,2) to (-6,10) into the first octant

b. Transform (3,3) to (5,10) into the first octant

c. Transform (-2,-2) to (-5,1) into the first octant
2. **Rasterization**

**Bresenham's Algorithm**

Basic idea: use line equation to choose E or NE

\[
y = mx + b \\
m = \frac{(y_1 - y_0)}{(x_1 - x_0)} \\
b = y_0 - mx_0 \\
f(x,y) = mx + b - y
\]

If \( f(M) < 0 \) \( \rightarrow \) E \\
If \( f(M) \geq 0 \) \( \rightarrow \) NE

Using Bresenham's Algorithm, what pixels are illuminated to rasterize the line segment (0,0) to (4,3)?