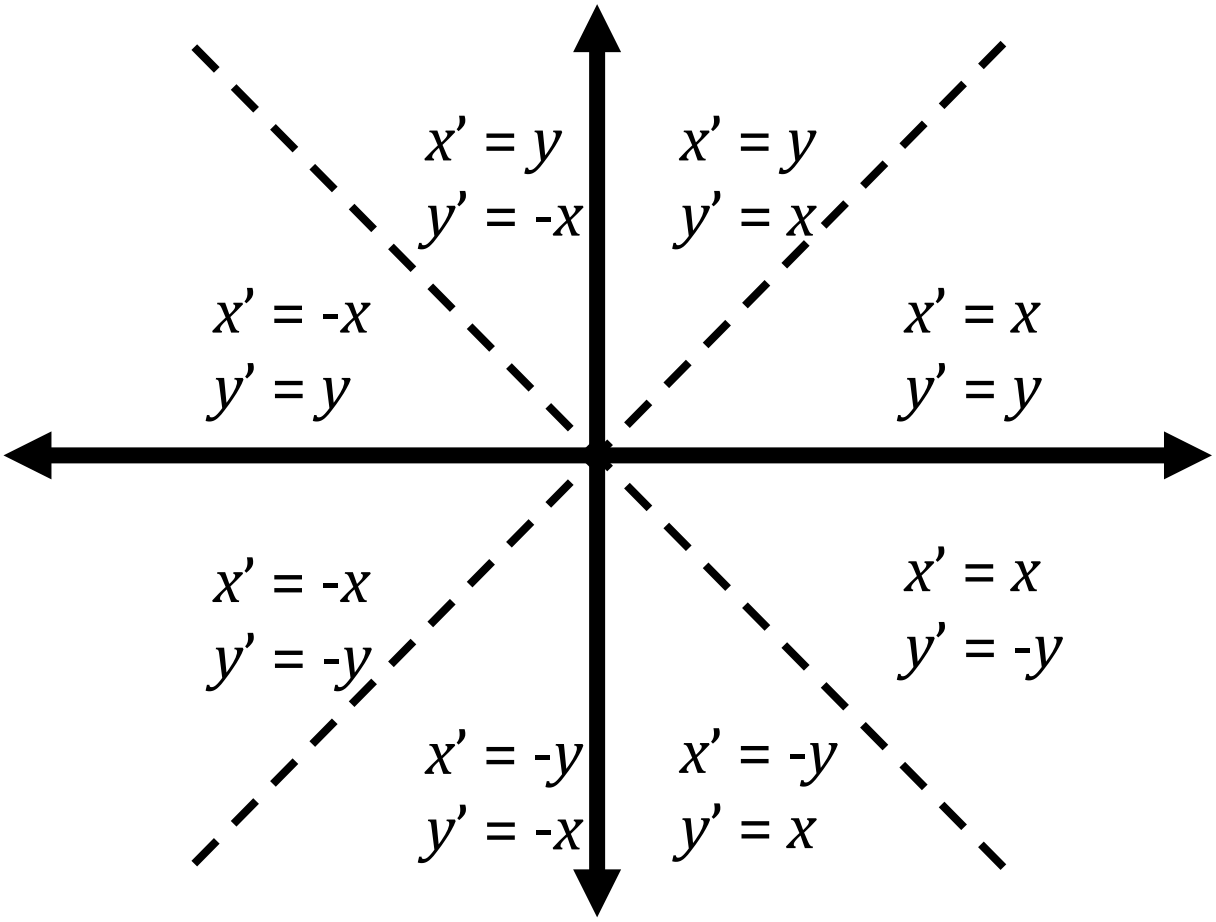
CS 418: Interactive Computer Graphics Spring 2019
In-class Worksheet: Rasterization

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

$y = mx + b$
$m = (y_1 - y_0)/(x_1 - x_0)$
$b = y_0 - mx_0$
$f(x,y) = mx + b - y$

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)?