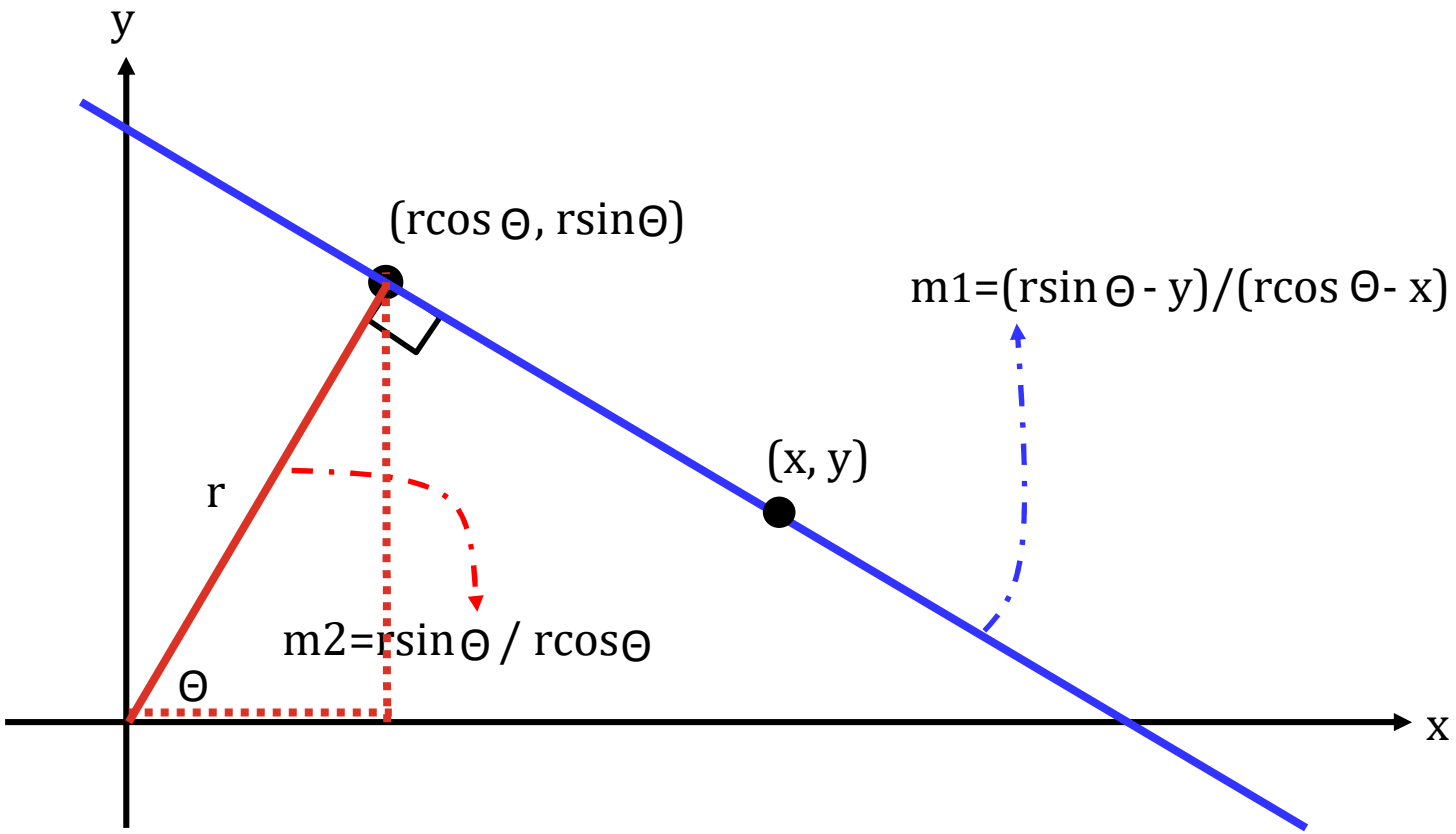
Line Detection

Line Detection

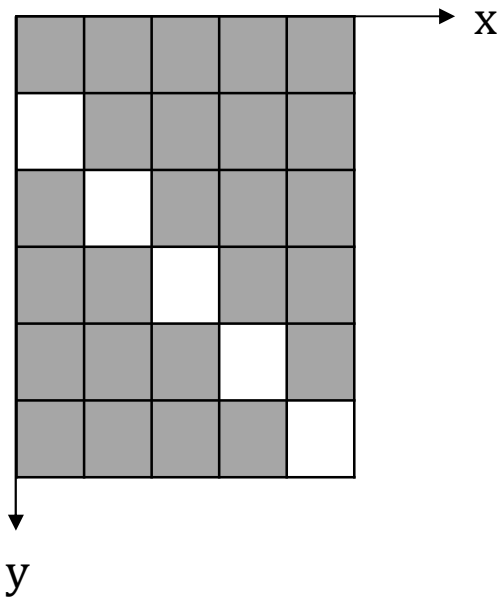


$m1*m2=-1 \rightarrow (r\sin\Theta - y)/(r\cos\Theta - x) = -\cos\Theta/\sin\Theta$

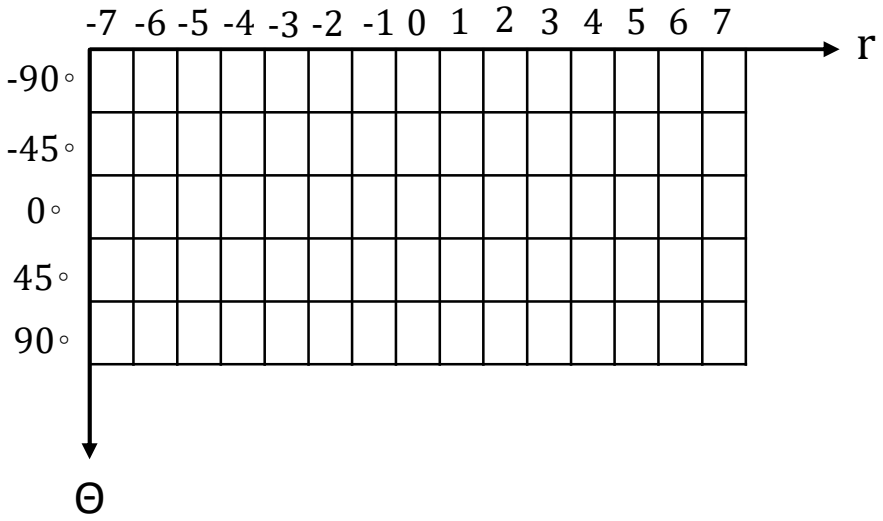
$y\sin\Theta + x\cos\Theta = r$

Line Detection

$$y\sin\Theta + x\cos\Theta = r$$

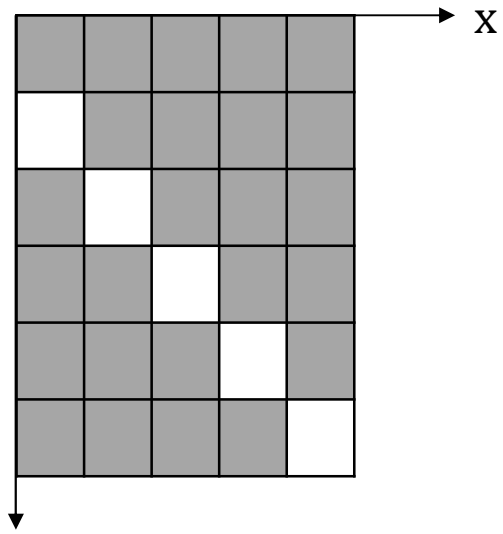


(0,1), (1,2), (2,3), (3,4), (4,5)



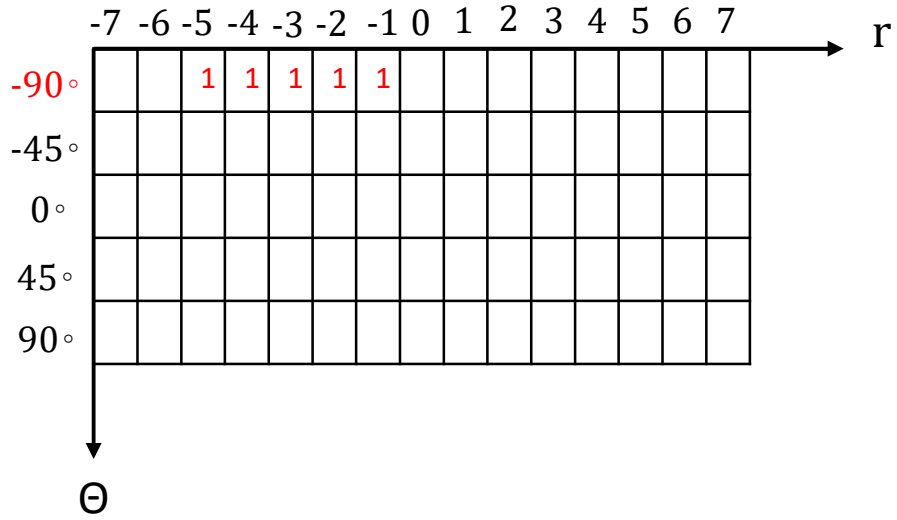
Step 1

$y\sin\Theta + x\cos\Theta = r$



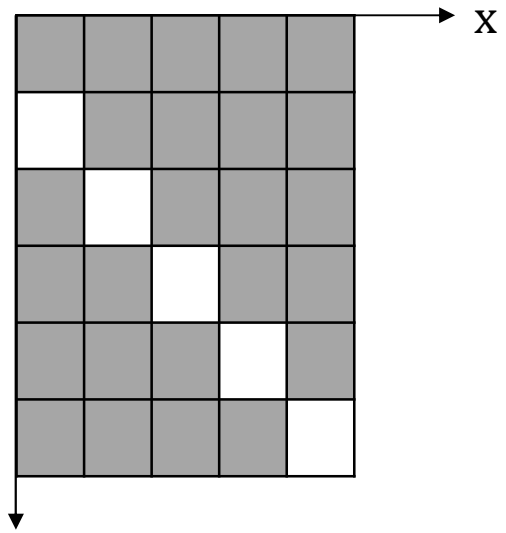
(0,1), (1,2), (2,3), (3,4), (4,5)

(0,1): $1*\sin(-90^\circ)+0*\cos(-90^\circ) = -1$
(1,2): $2*\sin(-90^\circ)+1*\cos(-90^\circ) = -2$
(2,3): $3*\sin(-90^\circ)+2*\cos(-90^\circ) = -3$
(3,4): $4*\sin(-90^\circ)+3*\cos(-90^\circ) = -4$
(4,5): $5*\sin(-90^\circ)+4*\cos(-90^\circ) = -5$



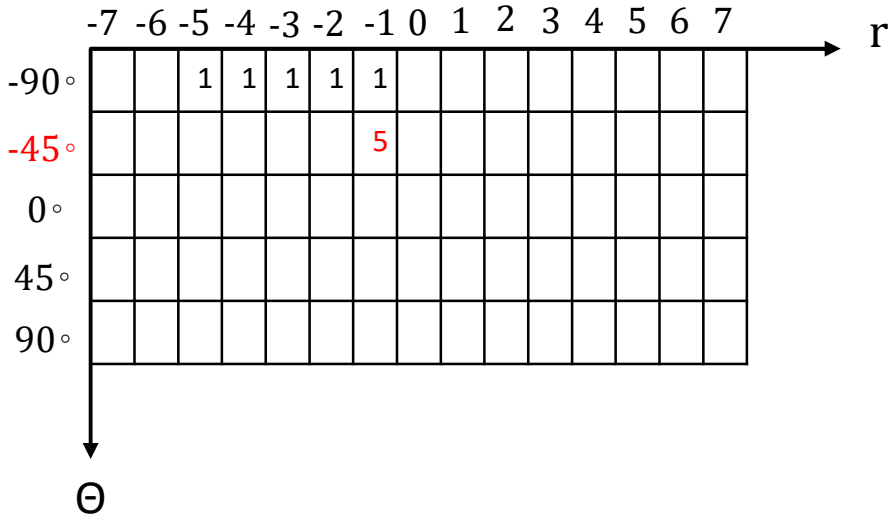
Step 2

$y\sin\Theta + x\cos\Theta = r$



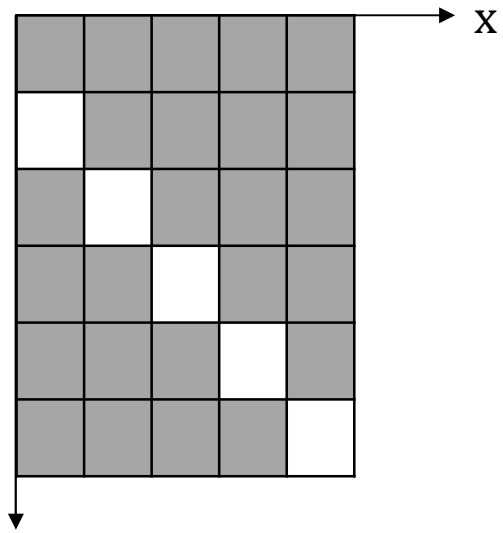
(0,1), (1,2), (2,3), (3,4), (4,5)

(0,1): 1*sin(-45◦)+0*cos (-45◦) =-0.706~-1
(1,2): 2*sin(-45◦)+1*cos (-45◦) =-0.706~-1
(2,3): 3*sin(-45◦)+2*cos (-45◦) =-0.705~-1
(3,4): 4*sin(-45◦)+3*cos (-45◦) =-0.705~-1
(4,5): 5*sin(-45◦)+4*cos (-45◦) =-0.704~-1



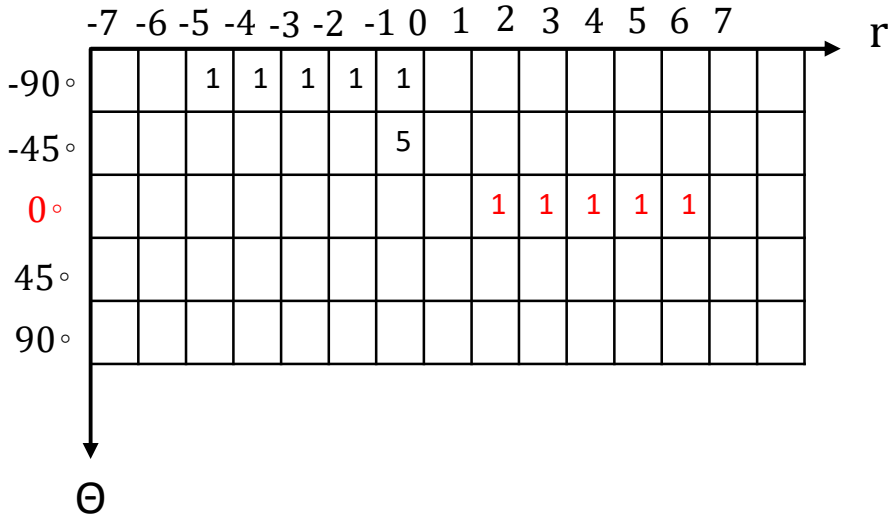
Step 3

$y\sin\Theta + x\cos\Theta = r$



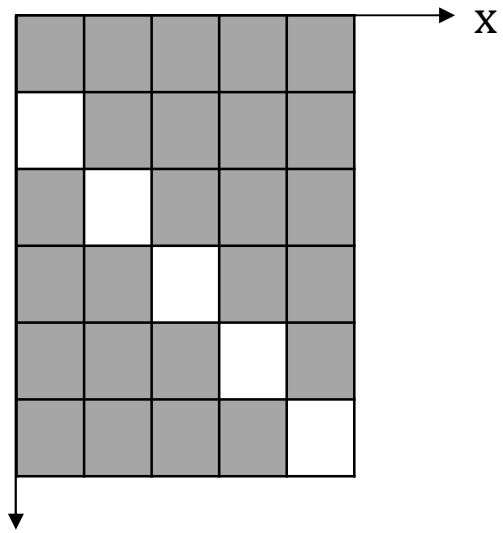
(0,1), (1,2), (2,3), (3,4), (4,5)

(0,1): $1*\sin(0^\circ)+0*\cos(0^\circ) = 1$
(1,2): $2*\sin(0^\circ)+1*\cos(0^\circ) = 2$
(2,3): $3*\sin(0^\circ)+2*\cos(0^\circ) = 3$
(3,4): $4*\sin(0^\circ)+3*\cos(0^\circ) = 4$
(4,5): $5*\sin(0^\circ)+4*\cos(0^\circ) = 5$



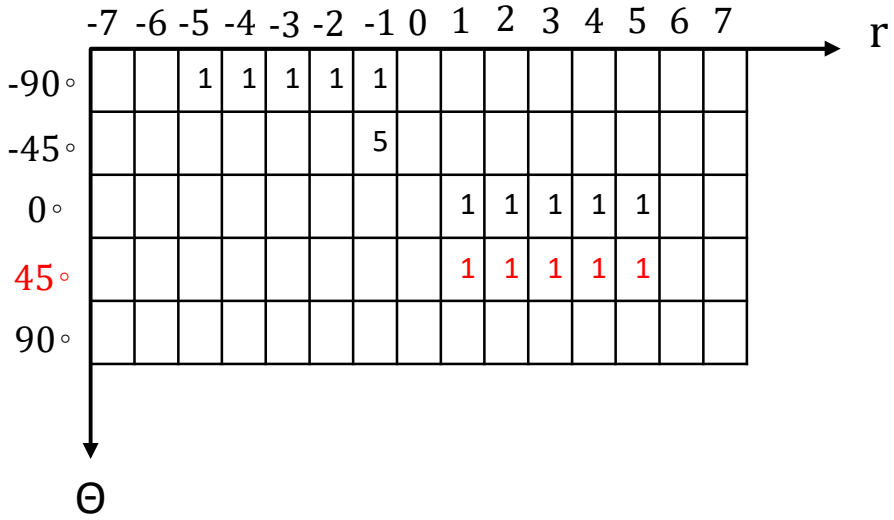
Step 4

$$y\sin\Theta + x\cos\Theta = r$$



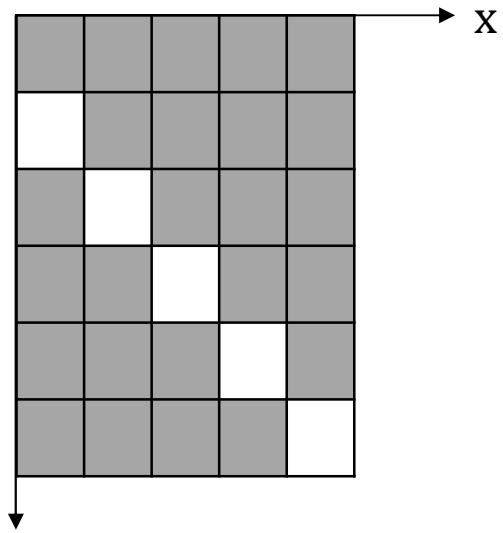
(0,1), (1,2), (2,3), (3,4), (4,5)

(0,1): 1*sin(45◦)+0*cos (45◦) =0.706~1
(1,2): 2*sin(45◦)+1*cos (45◦) =2.121~2
(2,3): 3*sin(45◦)+2*cos (45◦) =3.535~4
(3,4): 4*sin(45◦)+3*cos (45◦) =4.949~5
(4,5): 5*sin(45◦)+4*cos (45◦) =6.363~6



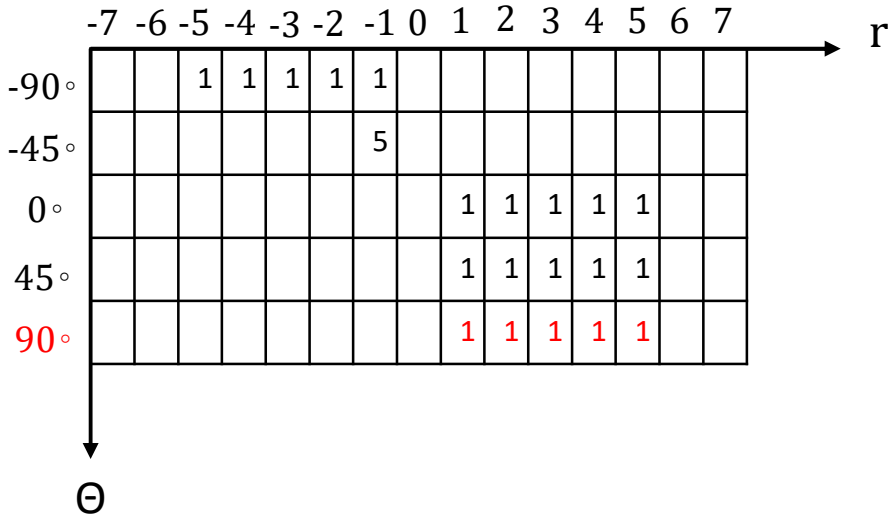
Step 5

$y\sin\Theta + x\cos\Theta = r$



(0,1), (1,2), (2,3), (3,4), (4,5)

(0,1): 1*sin(90◦)+0*cos (90◦) = 1
(1,2): 2*sin(90◦)+1*cos (90◦) = 2
(2,3): 3*sin(90◦)+2*cos (90◦) = 3
(3,4): 4*sin(90◦)+3*cos (90◦) = 4
(4,5): 5*sin(90◦)+4*cos (90◦) = 5



Step 6

$$y\sin\Theta + x\cos\Theta = r$$