Test Images

Create test images for experimenting with the `Radon Transform`

In [1]:
```
import numpy as np
import cv2
import matplotlib.pyplot as plt
```

Test image 1

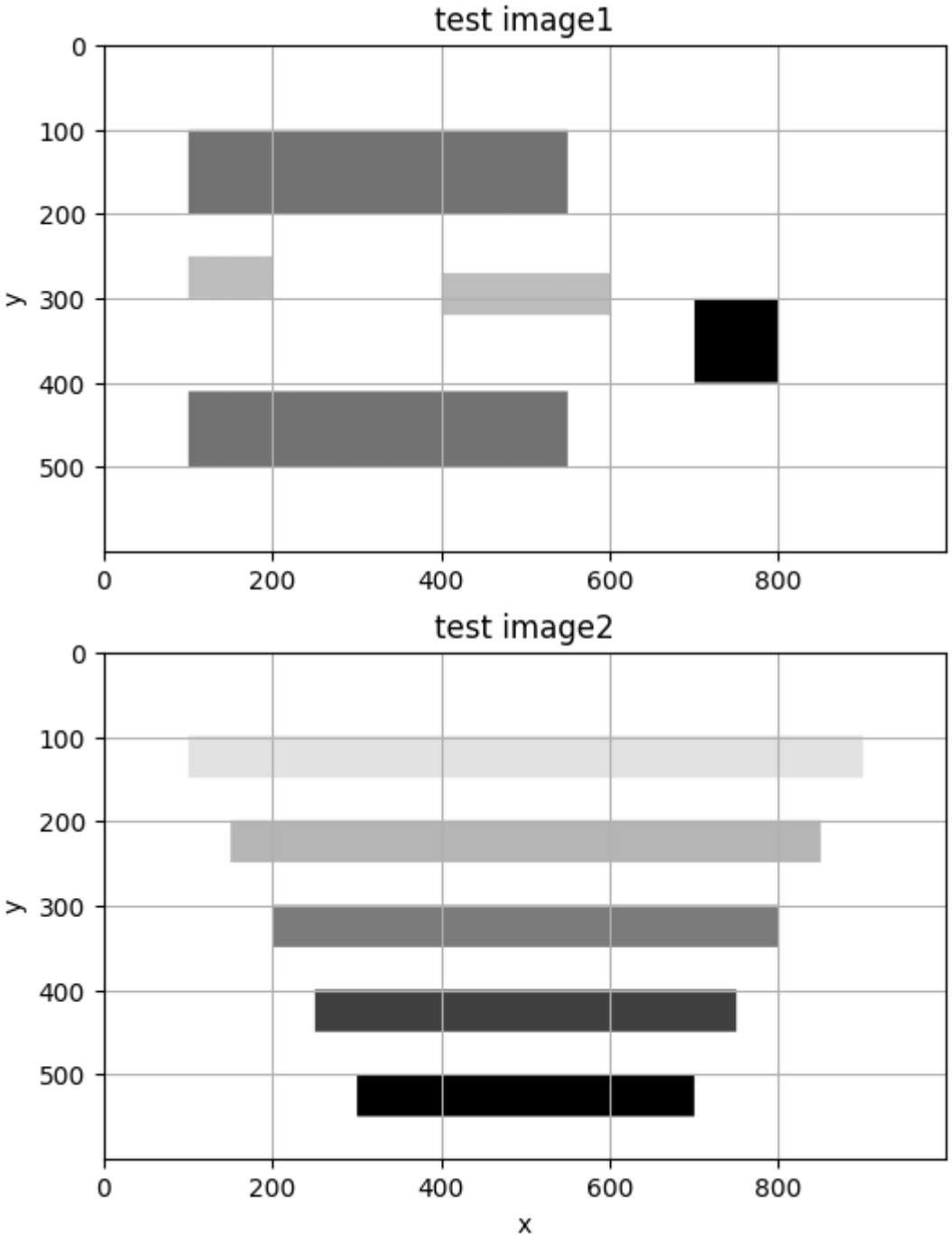
In [2]:
```
Nx = 1000
Ny = 600

# initialise the image with Ny rows and Nx columns
image = np.zeros((Ny, Nx))
# add rectangle 1
image[100:200, 100:550] = 50
# add rectangle 2,3,4
image[250:300, 100:200] = 30
image[270:320, 400:600] = 30
image[300:400, 700:800] = 80
# add rectangle 5
image[410:500, 100:550] = 50

# save to file
fname1 = './images/radon_tf_img1.npy'
np.save(fname1, image)
```

Test image 2

In [3]:
```
Nx = 1000
Ny = 600

# initialise the image with Ny rows and Nx columns
image = np.zeros((Ny, Nx))
# add rectangles
image[100:150, 100:900] = 10
image[200:250, 150:850] = 20
image[300:350, 200:800] = 30
image[400:450, 250:750] = 40
image[500:550, 300:700] = 50

# save to file
fname2 = './images/radon_tf_img2.npy'
np.save(fname2, image)
```

In [4]:
```
# load image
img1 = np.load(fname1)
```

```
img2 = np.load(fname2)

fig1 = plt.figure(1, figsize=[8, 8])
ax_f1 = fig1.add_subplot(2, 1, 1)
# plot of image
ax_f1.imshow(img1, cmap='Greys' )
ax_f1.grid(True)
ax_f1.set_ylabel('y')
ax_f1.set_title('test image1');

ax_f2 = fig1.add_subplot(2, 1, 2)
# plot of image
ax_f2.imshow(img2, cmap='Greys' )
ax_f2.grid(True)
ax_f2.set_xlabel('x')
ax_f2.set_ylabel('y')
ax_f2.set_title('test image2');
```



Test image 3 (low resolution)

In [5]:
```
Nx = 80
Ny = 60

# initialise the image with Ny rows and Nx columns
image = np.zeros((Ny, Nx))
# add rectangles
image[10:15, 10:50] = 30
image[20:25, 20:70] = 60
image[40:50, 30:50] = 100
# save to file
```

```
fname3 = './images/radon_tf_img3.npy'
np.save(fname3, image)
```

In [6]:
```
# load image
img3 = np.load(fname3)

fig2 = plt.figure(2, figsize=[8, 8])
ax_f2 = fig2.add_subplot(1, 1, 1)
# plot of image
ax_f2.imshow(img3, cmap='Greys' )
ax_f2.grid(True)
ax_f2.set_ylabel('y')
ax_f2.set_title('test image3');
```