```
import numpy as np
import matplotlib.pyplot as plt


#Q1
#load in image array
test_images = np.load('/Users/ella/Desktop/test_images.npy')

#select an image using the index
selected_image = test_images[5]

# Display the image in grayscale source:
https://matplotlib.org/stable/tutorials/introductory/images.html
plt.imshow(selected_image, cmap='gray')
plt.show()

#save as png
source:https://stackoverflow.com/questions/56335202/how-to-save-grayscale-image-in-python
plt.imsave('Ella_Ryan_1.png', selected_image, cmap='gray')


#Q2
#inverting the image source: https://www.educative.io/answers/what-is-numpyinvert-in-numpy
inverted_image = np.invert(selected_image)
#showing inverted image
plt.imshow(inverted_image, cmap='gray')
#saving inverted image
plt.imsave('Ella_Ryan_1.png', inverted_image, cmap='gray')


#Q3 adding filter source: https://matplotlib.org/stable/tutorials/introductory/images.html
plt.imshow(selected_image, cmap="hot")
#saving inverted image
plt.imsave('Ella_Ryan_3.png', selected_image, cmap='hot')
```