Activity 1 Extension – Changing Image Contrast **Name_____**

This extension will deal with the original grayscale image, and not the negative.
Since our image has pixel values between 0 and 1, we can change the contrast of the image by universally darkening or lightening it. This effect is accomplished using exponents on each pixel value.

Why is it useful that the pixels have values from 0 to 1?

What do you expect the outcome to be if the exponent is greater than 1? … less than 1? … equal to 1?

14. Let's explore the contrast change that results from raising all pixel values to the power of 2. To apply the power operator to all elements, we must use a "." before the carat.

```
close all
myGrayImagePow2 = myGrayImage.^2;
figure(1)
imshow(myGrayImage)
figure(2)
imshow(myGrayImagePow2)
```

What was accomplished by using a power of 2?

15. Now try a power of ½.

```
myGrayImagePowHalf = myGrayImage.^.5;
figure(3)
imshow(myGrayImagePowHalf)
```

What did this accomplish?

16. Now that you have an idea of how the contrast changes, test a few more to investigate which will enhance the contrast the most.

What power enhanced your image contrast the most?