Exercise #1
Digital Image Scanning Independent Exercise

Calculating File Sizes for Digital Images

Required: **Calculator**

In this exercise, we will determine file sizes for items. Two different approaches are need depending on whether the items are physical or electronic (born digital).

1. Calculate file sizes for master images for an 8x10 inch image. The image will be captured at 400 dpi in each example.
    a. What will be the file size if it is a 1-bit image?
    Formula = 8 x 10 x 1 x (400 x 400) / 8

    b. What will be the file size if it is an 8-bit image?
    Formula = 8 x 10 x 8 x (400 x 400) / 8

    c. What will be the file size if it is a 24-bit image?
    Formula = 8 x 10 x 24 x (400 x 400) / 8

Extra Credit!
Note that the project specification has been set to: 24-bit, 400 dpi for still images for the master image. To learn how much file space you would need to archive this hypothetical collection, multiply your answer to the last calculation by 200.

2. When there is no physical piece to work from because the image is already in electronic format ("born digital"), the file size must be worked out based on the settings for the digital camera. Use the following resolution settings to determine file size.
    a. Camera is set to high resolution (pixel dimensions of 3,072 x 2,048)
    Formula = (3072 x 2048 x 24)/8

    b. Camera is set to low resolution (pixel dimension of 800 x 600)
    Formula = (800 x 600 x 24) /8