

1. Answer the question, what happened to the red and green channel after the operation?
They looked gray. The original picture was a combination of red, green and blue in different values. We separated the green and red channel values from the original picture which looks gray (or pale) to the eye.
2. Answer the question, what happened to the original rgb image after it's red and green channels have been altered? Motivate.
Original rgb image stays as is since we have stored the altered images into new variables.
3. What are the sizes of the files? Look at both physical sizes of the files and the dimensions. Can you explain the changes?
 $\text{size}(B) = 480 \times 640 \times 3$
 $\text{size}(\text{newB}) = 240 \times 320 \times 3$
 The pixel value of newB is half the pixel value of B.
4. What is the difference of q5 and q7?
It is a new variable 'diff' which has zeros as most elements of the matrix and a few 2's or multiples of 2's like 4's and 6's in some places. If you see 'diff' via imshow, it is a black image because 0 pixel value is black in Matlab.
5. What are the maximum value of those images? Why is it so?
 Max4bit
 $\text{val}(:, :, 1) = 15$
 $\text{val}(:, :, 2) = 15$
 $\text{val}(:, :, 3) = 15$

 Max6bit
 $\text{val}(:, :, 1) = 3$
 $\text{val}(:, :, 2) = 3$
 $\text{val}(:, :, 3) = 3$

 Max4bit and Max6bit are obtained from B. Let us first see max pixel values in B,
 $\text{MB} = \max(\max(B))$ is
 $\text{val}(:, :, 1) = 255$
 $\text{val}(:, :, 2) = 255$
 $\text{val}(:, :, 3) = 255$

 $(\text{MB}/2^4) - 1 = 14.9375 \sim 15 = \text{Max4bit}$
 $(\text{MB}/2^6) - 1 = 2.9844 \sim 3 = \text{Max6bit}$

