

Sheet 1

1. What linear transformation will change an image $f(x,y)$ with gray levels ranging from 4 through 18 to an image $g(x,y)$ with gray levels ranging from 10 through 50?
2. Consider the image shown below; compute the equalized image with eight possible gray levels. Show each step carefully. Draw the histograms of the original and equalized images as well as the equalization transformation.

1	2	1	1	2	0
0	1	5	1	0	1
1	6	7	6	1	2

3. Fig. 1 contains several curves (labeled as A, B, C, D and E) that could be used to transform the brightness values of a monochrome image by the operation $g = T \{f\}$ where f refers to the input image and g is the result of T operating on f . Fig. 2 shows four pairs of histograms. The image whose histogram is shown on the left is to be transformed so that the new histogram matches with the histogram on the right. For each pair, indicate, with explanation, which curve can be used to do the transformation.

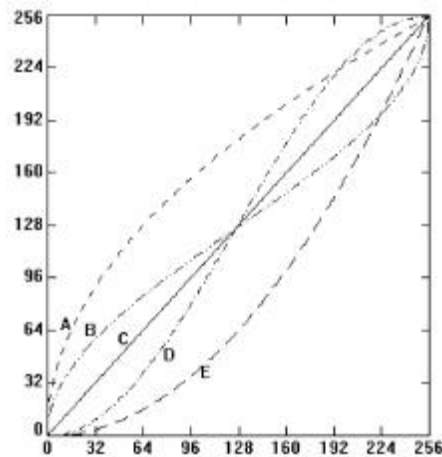


Figure 1

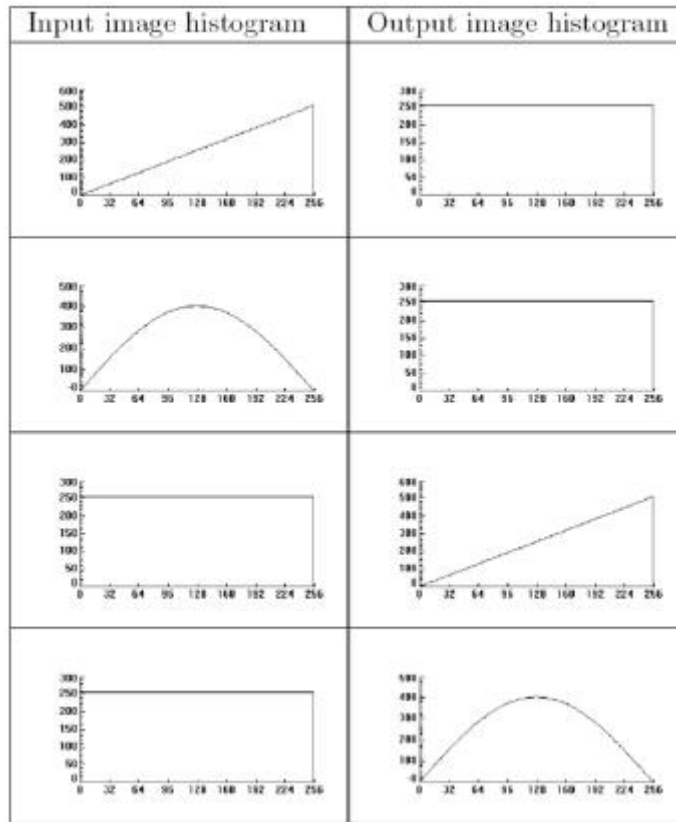


Figure 2