✱ Histogram Equalization Example:

r_k	n_k	$P_r(r_k) = n_k / MN$
$r_0 = 0$	83	83/4096 = 0.02
$r_1 = 1$	120	120/4096 = 0.03
$r_2 = 2$	240	240/4096 = 0.06
$r_3 = 3$	329	329/4096 = 0.08
$r_4 = 4$	656	656/4096 = 0.16
$r_5 = 5$	855	855/4096 = 0.21
$r_6 = 6$	1023	1023/4096 = 0.25
$r_7 = 7$	790	790/4096 = 0.19

$S_0 = T(r_0) = 7 \sum_{j=0}^{0} P_r(r_j) = 7 \times 0.02 = 0.14 \approx 0$

$S_1 = 7 \times (0.02 + 0.03) = 0.35 \approx 0$

$S_2 = 7 \times (0.02 + 0.03 + 0.06) = 0.77 \approx 1$

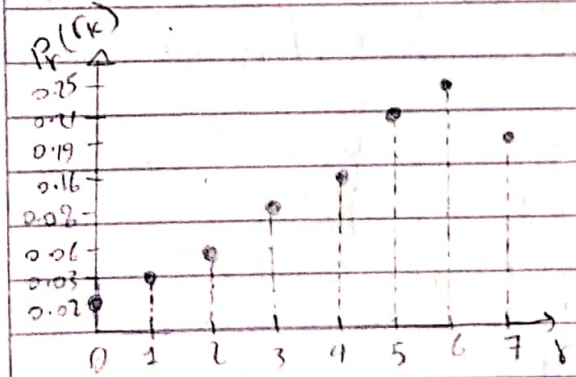
$S_3 = 7 \times (0.11 + 0.08) = 1.33 \approx 1$

$S_4 = 7 \times (0.19 + 0.16) = 2.45 \approx 2$

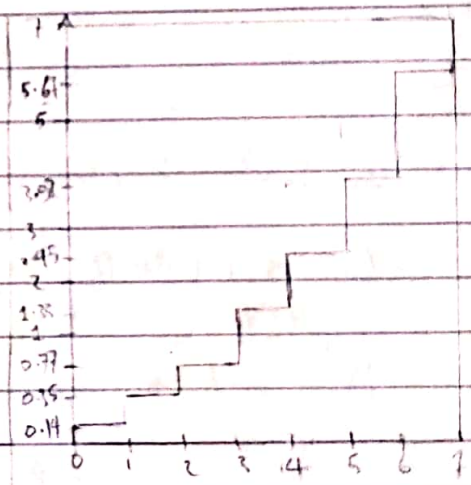
$S_5 = 7 \times (0.35 + 0.21) = 3.92 \approx 4$

$S_6 = 7 \times (0.56 + 0.25) = 5.67 \approx 6$

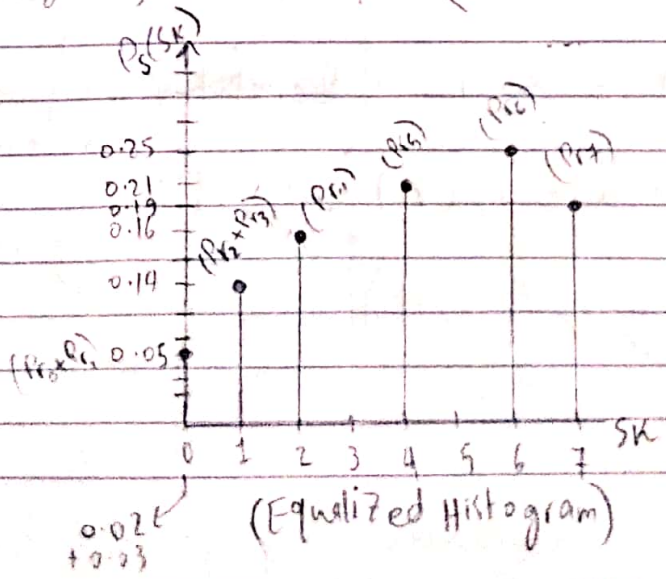
$S_7 = 7 \times (0.81 + 0.19) = 7$



(original Histogram)



(Transformation Function)



(Equalized Histogram)