5 August, 2025

1. You are preparing a report and want to insert an image of size 1000×1000 pixels in a 5×5 cm region. What should be the specification of the printer, so that the image can be reproduced with no loss of information?

2. Is intensity thresholding, as given below, a linear operation? Justify your answer with a proof or a counterexample.

$$T(r) = \begin{cases} 0 & \text{if } r < k, \\ L - 1 & \text{if } r \geq k \end{cases}$$