1. "Applying the same intensity transformation to all three components of an RGB image changes the luminance but preserves the chromaticity of pixels in the image." True or false? Justify your answer.

2. A continuous signal $f : \mathbb{R} \to \mathbb{R}$ is convolved with a box h of unit width and height, and the result $g = f * h$ is sampled at unit spacing to give $\tilde{g}$. What is its Fourier transform $\tilde{G} = \mathscr{F}(\tilde{g})$, in terms of $F = \mathscr{F}(f)$?