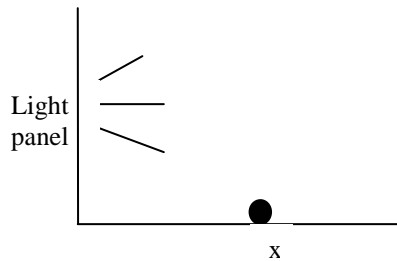


3. Consider a point x on a surface that is 5 units away from a flat light panel that sits perpendicular to the surface the point is on. The light panel is 10×10 units. N_s is the vector normal to the surface and N_{lp} is the vector normal to the light panel. The intensity of light going out from the panel is $\cos^2(\theta)$ where θ is the angle an light vector makes with N_{lp} . The reflectance function of the surface is $\cos(\psi)$ where ψ is the angle an incoming vector makes with N_s (the incoming vector is negated when determining ψ). What is the irradiance at the point? What is the radiosity? Identify what equations you need to use, other information you might need, and how to set up the calculations specific to this problem. You don't need to actually work out all the details - just explain what those details are and how they could be worked out.



4. Given the image below with intensities from 0-20, describe how a perceptual, local adaptation tone-mapping algorithm would process this image and how the image intensities would be mapped to the range 0-4.

3	2	3	4	15	16
3	2	3	4	15	16
3	2	2	4	5	6
7	5	4	3	2	1
7	5	4	3	12	12
7	5	4	4	12	11

5. What is ideal sampling and reconstruction of a continuous 1D signal? Show it in the spatial domain and the frequency domain.