

# Homework #2 Light

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Due Feb. 25, 2014 5:00pm

## Problem #1: (5 points)

We see a diffuse sphere centered at the origin, with radius one and albedo  $\rho$ , in an orthographic camera, looking down the z-axis. This sphere is illuminated by a distant point light source whose source direction is  $(0, 0, 1)$ . There is no other illumination. Show the shading field (i.e., the image pixel intensity) in the camera is

$$\rho\sqrt{1 - x^2 - y^2}$$

Hints: what is the angle between the light source and the normal vector of a point at  $(x, y, z)$  in the surface of the sphere?

## What to turn in?

You should make your answers in a PDF file and name it as:

**[yourfirstname]\_[yourlastname]\_HW2.pdf**

Please submit it through the Moodle system.

**\*\*\*Important Notice: Please also bring a printed copy of your answers to the class in the due day of the assignment. This is mandatory\*\*\***

## Grade: 5%

Late submission policy applies universally with no exception.

If you have a compelling excuse, you must inform me at least 2 days before the due date. I don't accept excuses such as **"I am overloaded by other courses"**.