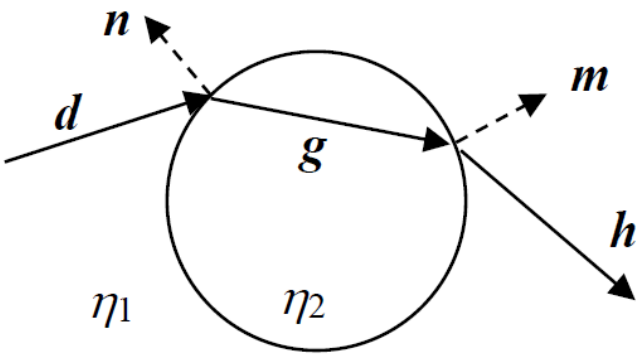
COSC 363

Assignment 2

Due: Friday, **31st May** 11:55pm.

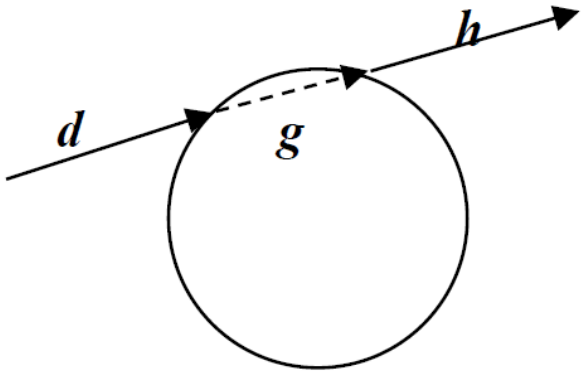
Dropdead date (15% penalty): 7th June, 11:55pm

Refraction vs Transparency



Refraction

$\eta_1 < \eta_2$

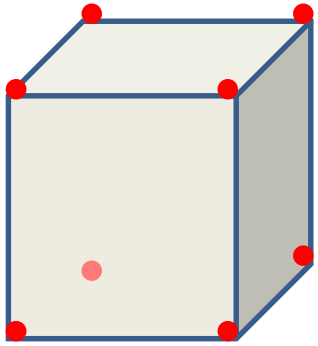


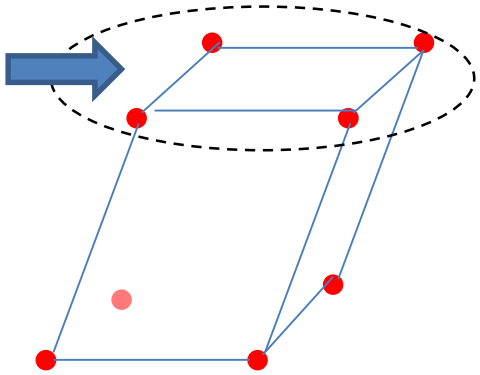
Transparency

$d = g = h$

A transparent object should <u>not</u> be modelled as a special case of a refractive surface with $\eta_1 = \eta_2 = 1$

Box





A shear transformation of a box (trivial to implement): 0.5 marks

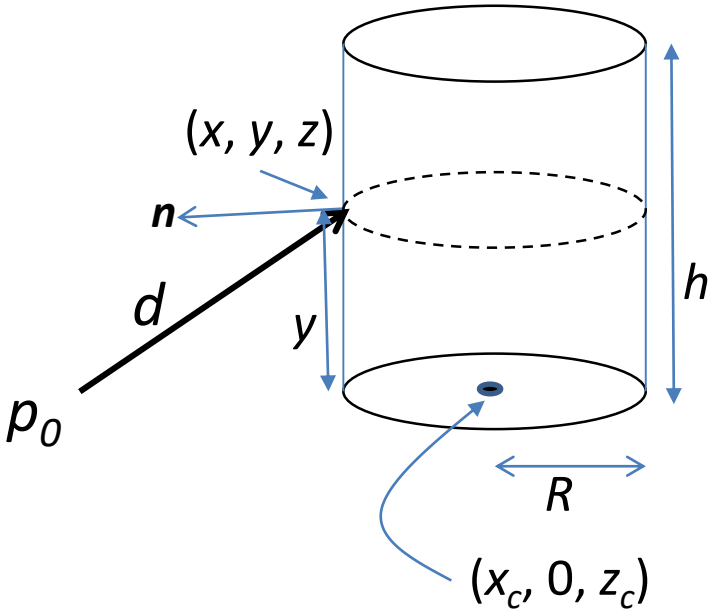
Rotational transformation of a box: 1 mark

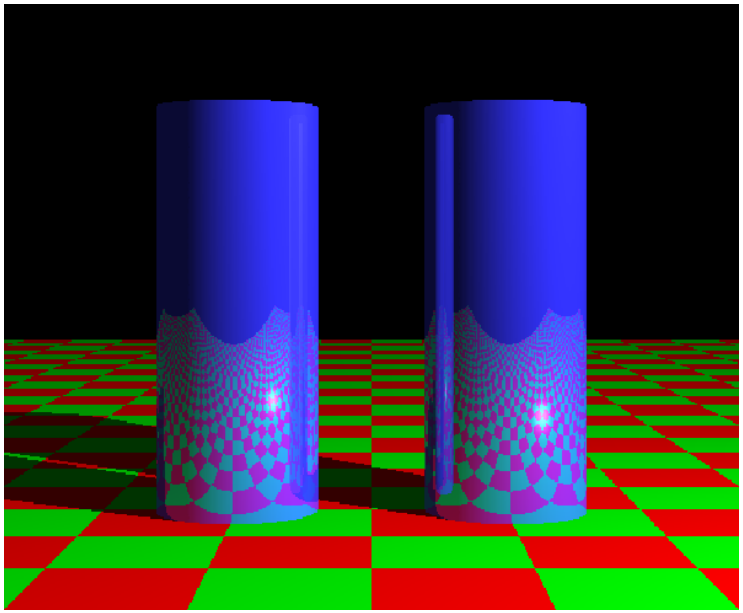
Cylinder

- See slide [09]-38

$$(x - x_c)^2 + (z - z_c)^2 = R^2$$

$x = x_0 + d_x t$ $\quad$ $z = z_0 + d_z t$



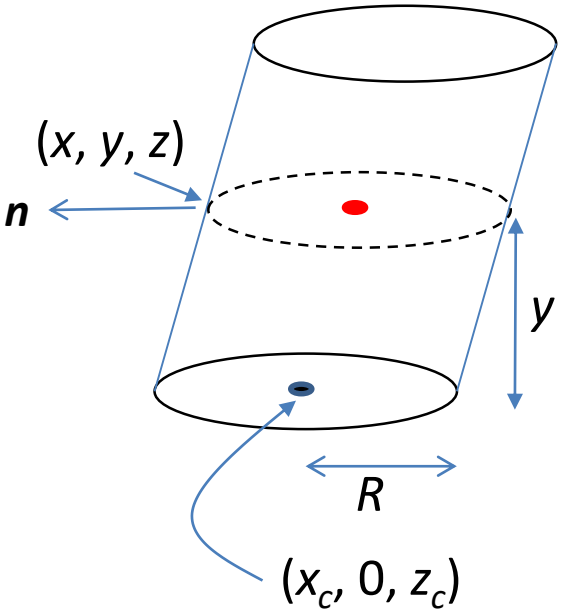


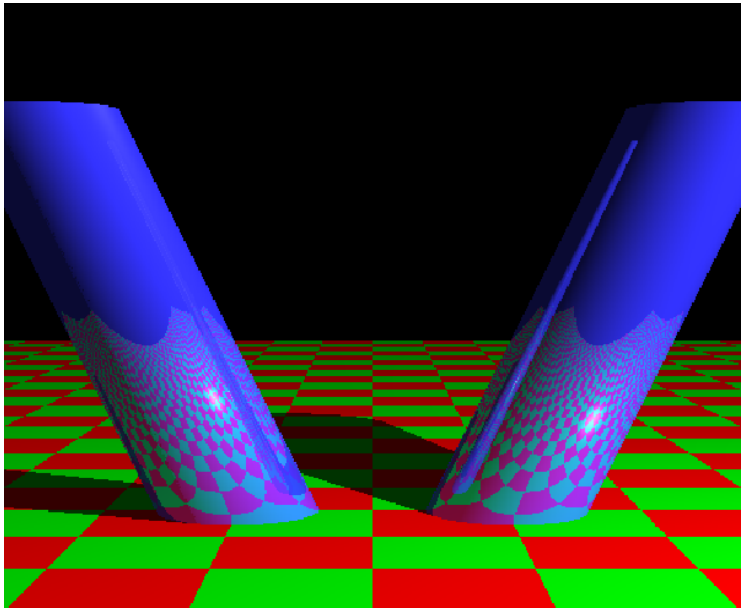
$\boldsymbol{n} = (x - x_c,\ 0,\ z - z_c)$

Cylinder + Shear

$$[x - (x_c + ky)]^2 + (z - z_c)^2 = R^2$$

$$x = x_0 + d_x t; \quad y = y_0 + d_y t; \quad z = z_0 + d_z t;$$





$\boldsymbol{n} = (x - x_c - ky \;\; , \;\; 0, \;\; z - z_c)$

Note: This is an approximation.

Submission

- Provide build details/command in the report
- Please submit report in PDF format only
- Please package the files as a zip file (not rar, gz, 7z etc.)