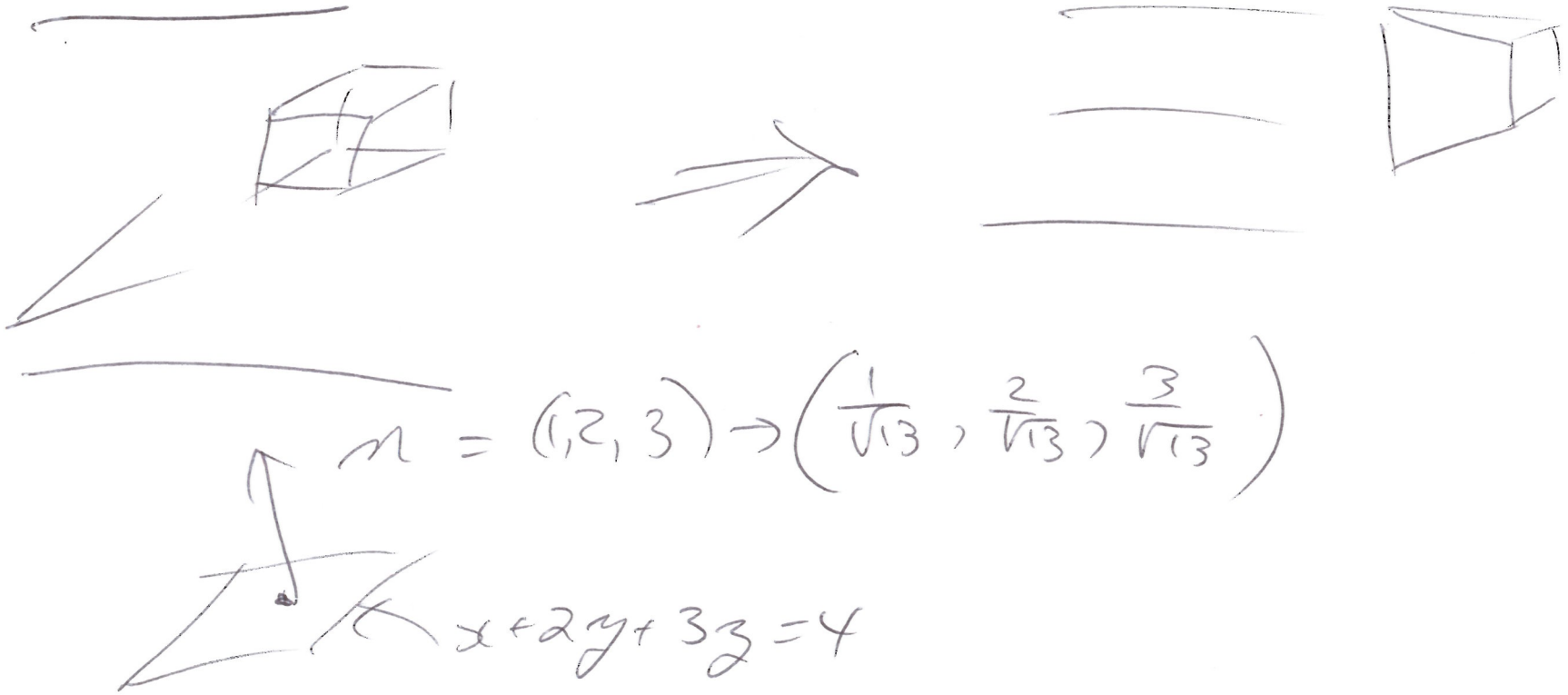
#16 10/12/10 - 1

PHONG

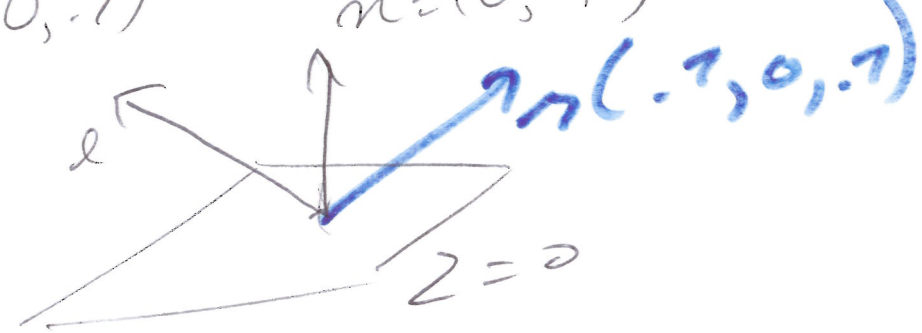
978-394-6390



$$n = (1,2,3) \rightarrow \left(\frac{1}{\sqrt{13}}, \frac{2}{\sqrt{13}}, \frac{3}{\sqrt{13}}\right)$$

$x+2y+3z=4$

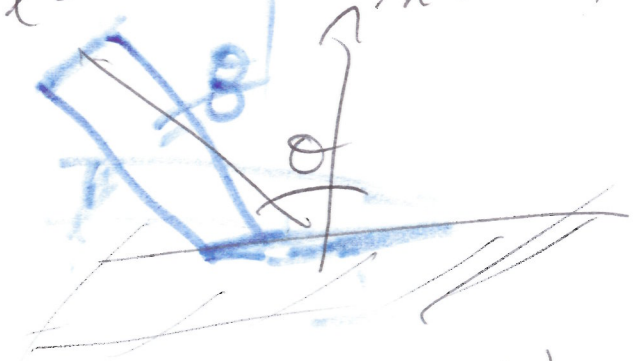
$l = (-.7, 0, .7)$



$$r = 2(l \cdot n)n - l$$
$$= \frac{2 \times .7}{1.4}(0,0,1) - (-.7,0,.7)$$
$$= (0,0,1.4) - (-.7,0,.7)$$
$$= (.7,0,.7)$$

DERIVE FORMULA FROM VECTOR ROTATION IN 3D.

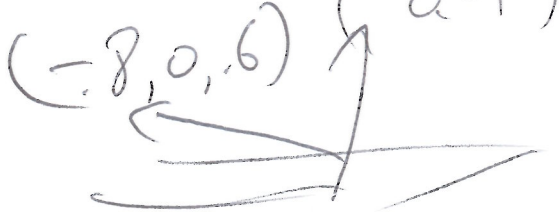
$l = (-.7,0,.7)$



$$\cos\theta = l \cdot n$$
$$= (-.7,0,.7) \cdot (0,0,1)$$
$$= .7$$
$$\theta = 45^\circ$$

$l = (-.8,0,.6)$ $\quad |l| = 1$

$l \cdot n = .6$



$$\underline{I_a} = \begin{matrix} R & G & B \\ (1, & .5, & 0) \end{matrix}$$

$$K_a = (.3, .4, .5)$$

AMBIENT COLOR = $(.3, .2, 0)$

$$\frac{1}{a + bd + cd^2}$$

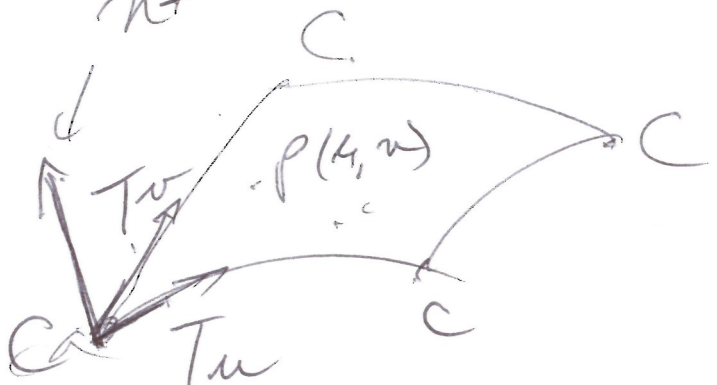
9 PARAMS / LIGHT

10 PARAMS / MATERIAL

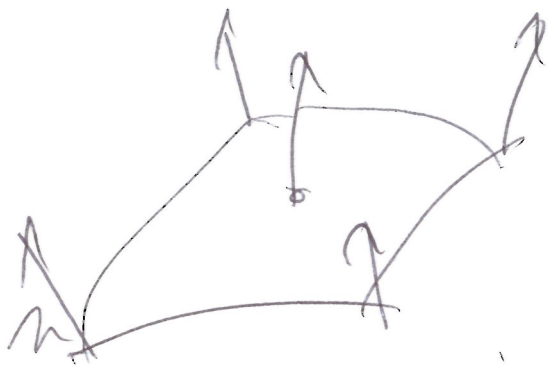
OUT: PIXEL BRIGHTNESS
DUE TO 1 LIGHT

IN: - LIGHT PROPS
- MAT PROPS
- VIEWER LOC

$n = T_u \times T_v$, NORMALIZED

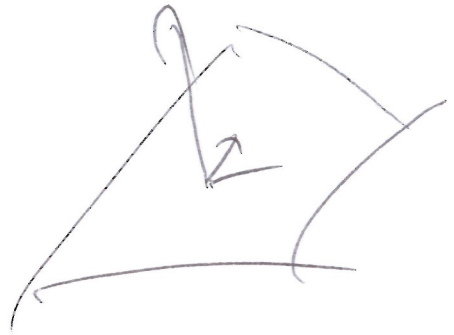


1. INTERPOLATES COLORS.



2. INTERPOLATE NORMALS

COMPUTE COLOR



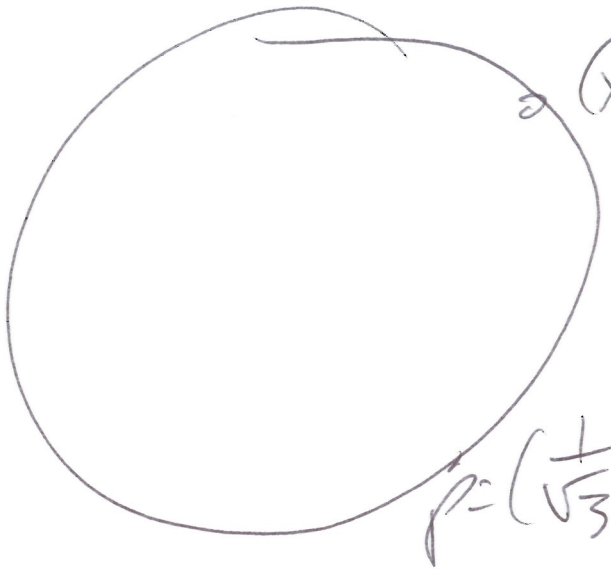
3. COMPUTE NORMAL @ PIXEL

COMPUTE COLOR.

BETTER

SLOWER

$$x^2+y^2+z^2=1$$



$n = (x, y, z)$

$p = \left(\frac{1}{\sqrt{3}}, \frac{-1}{\sqrt{3}}, \frac{1}{\sqrt{3}}\right)$

$n = \;''$