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1. In Diffuse Reflection given the value of Ip=10. Kd=0.5 and angle between the \vec{L} and \vec{n} vector is 120 degree. Find out the value of Diffuse Reflection (D).

2. In Specular Reflection 2 vectors \vec{V} and \vec{R} is given. $\vec{V} = 2\hat{\imath} + 3\hat{\jmath} + 5\hat{k}$ and $\vec{R} = \hat{\imath} + 2\hat{\jmath} + \hat{k}$. Find out the value of cos (a). [Here α means the angle between the vector \vec{V} and \vec{R}] (7)

$$\nabla = 2\hat{i} + 3\hat{j} + 5\hat{k} \qquad \vec{P} = \hat{i} + 2\hat{j} + \hat{k}$$

$$\vec{V} = 2 + 6 + 5 = 10$$

$$\vec{W} = \sqrt{2 + 3 + 5^{2}} = 6.16$$

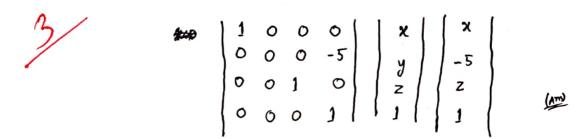
$$\vec{P} = \sqrt{1 + 2 + 1^{2}} = 2.45$$

$$\cos(\alpha) = \vec{V} \cdot \hat{P} = \frac{\vec{V} \cdot \vec{P}}{|\vec{V}| |\vec{V}|} = \frac{13}{6.16 \times 9.45}$$

$$\cos(\alpha) = \sqrt{.2} = \frac{\sqrt{.2}}{|\nabla|.|\vec{R}|} = \frac{13}{6.16 \times 2.45}$$

$$= 0.861$$

3. Write the Orthographic Projection Matrix if we project the (x,y,z) point on ZX plane where y=-5. [No Derivation required just write the matrix of 4*4 shape] (3)



Suppose a Oblique Projection on xy plane where z=0. Given, Φ=30 degree and α=60 degree. Input point is A (3, 5, 7) Find out the new co-ordinate of point A after projection. [Use Oblique Projection matrix to solve the math]

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