Table of Contents

Selected Problem Set 8 1

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1. Given the ray $\vec{r}(t)=\vec{e}+\vec{d}\,t$ where $\vec{e}=(3,3,3)^T$ and $\vec{d}=(-1,-1,-1)^T$, find the minimal value of t for which the ray intersects a generic sphere.

2. Give the 3D coordinates of the intersection point on the sphere.

3. Give the sphere surface normal at the intersection point.

4. Given a light located at $(0,0,10)^T$, give the unit vector from the intersection point to the light source.

5. Compute $\vec{r}$, the vector of specular reflection at the intersection point.