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Selected Problems

1. Show that three 3D collinear points are also collinear in the image plane under perspective projection.

2. Given a thin lens, formally show that focus is a function of depth. Start with defining what focus is.

3. What happens to an imaged scene if the focal length of a perspective camera is increased. What happens when the focal length is infinite?

4. Explain why a 3D line expressed as a parametric form has 6 degrees of freedom.

5. Explain why only 4 degrees of freedom are necessary to express a 3D line in general.