

WS 17 Coma investigation

Set up the ray box so that you have five collimated beams of light. Place the double convex lens in the beam so that it is essentially normal to the rays. Trace the rays. Do you notice any indications of aberration? Discuss what this implies you would see on the screen in a three dimensional situation. Explain how this relates physically to point and extended sources.

Steeply angle the double convex lens and trace the rays again. Accurately sketch and describe the image you would see in a three dimensional situation. Explain how you arrived at this answer?

Replace the double convex lens with the concave mirror. Position the mirror so that it is at an angle to the beam. What do you observe? Again, accurately sketch and describe the image you would see in a three dimensional situation.

Can you have coma with a diverging lens or a convex mirror? What would happen in this situation?

Confirm your prediction.