

Problems

Chapter 14

1. A compound microscope has an objective of focal length 5.00cm and an eyepiece of focal length 10.0cm. The distance between the lenses is 30.0cm. The image due to the objective alone falls just inside the focal length of the eyepiece.
 - (a) Find the tube length of the microscope (distance between the focuses inside the microscope tube).
 - (b) Find the distance of the object from the objective lens.
 - (c) Find the lateral magnification due to the objective alone.
 - (d) Find the angular magnification due to the eyepiece alone.
 - (e) Find the overall angular magnification of the microscope.

2. A telescope is to be designed to have an angular magnification of 100. The available eye piece has a focal length of 5.0cm. Find the necessary focal length of the objective.