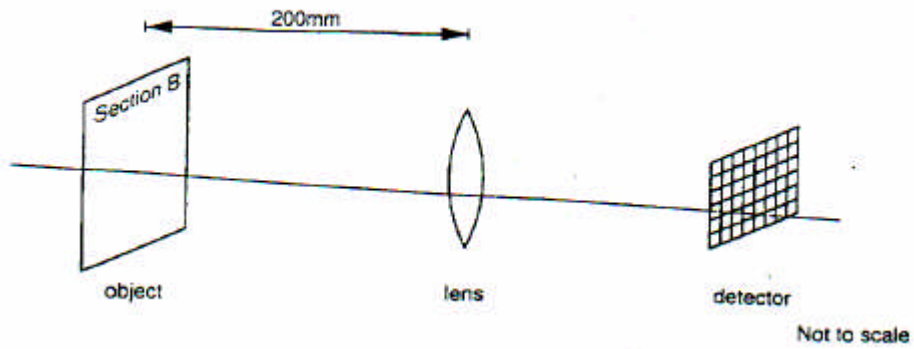


Chapter 1
Short answer questions

1. This question is about a digital camera.



The lens of the camera is 200 mm away from the object. The lens has a focal length of 5.00 mm. It produces a sharp image on the detector.

- (a) Calculate the power of the 5.00 mm lens.

power =

- (b) Calculate the distance from the lens to the detector.

distance =

(c) The detector has an array of 10^6 discrete light-sensitive elements in a square of side 2.5 mm.

(i) Show that the width of each element is $2.5 \mu\text{m}$.

(ii) Calculate the distance this width corresponds to on the subject.

Distance =

(c) The object being imaged is this page. Comment on the quality of image that would be produced by this camera.